RAILROAD GAZETTE

FRIDAY, JULY 27.

Train Accidents in June.

The following accidents are included in our record for the month of June:

COLLISIONS.

REAR.

On the morning of the 8th a freight train on the Jeffersonville, Madison & Indianapolis road ran into a preceding freight near Jonesville, Ind., damaging six cars.

On the morning of the 8th a freight train on the Wilmington & Weldon road ran into a passenger train from the Scotland Neck Branch, which had just entered on the main track at Halifax, N. C., wrecking a passenger car.

On the night of the 8th a freight train on the Illinois Central road ran into a preceding freight near Dongola, Ill., wrecking several cars.

On the night of the 9th a freight train on the Chicago & Northwestern road ran into the rear of a passenger train which had been stopped by a disabled engine near Elmhurst, Ill. The collision was slight, and very little damage was done.

On the morning of the 10th a yard engine on the Buffalo, New York & Philadelphia road ran into the rear of a freight train in Titusville, Pa., wrecking the caboose and damaging the engine.

On the afternoon of the 10th a construction train on the New York, West Shore & Buffalo road ran into another construction train standing near Normanskill, N. Y., wrecking several cars, killing a laborer and injuring two others. It is said that the throttle valve of the engine broke, so that the engineer could not shut off steam.

On the evening of the 10th a freight train on the Galveston, Harrisburg & San Antonio road ran into a preceding freight near San Antonio, Tex. The engine was damaged, three cars wrecked and a brakeman hurt.

On the morning of the 11th a freight train on the New York Central & Hudson River road ran into a car left standing at the end of a siding in Waterloo, N. Y. The engine and several cars were damaged.

Very early on the morning of the 14th a passenger train on the Gulf, Colorado & Santa Fe road ran over a misplaced switch and into a freight train standing on a siding in Cleburne, Tex. Both engines were badly damaged.

On the morning of the 14th a passenger train on the Cumberland Valley road ran into the rear of a freight near Shippensburg, Pa., wrecking several cars and injuring the conductor.

On the morning of the 19th a passenger train on the New York Central & Hudson River road ran over a misplaced switch and into some coal cars standing on a siding in Rochester, N. Y., damaging several cars.

On the morning of the 19th a passenger train on the Albany & Susquehanna road ran over a misplaced switch and into a freight car standing on a siding in Albany, N. Y. The car was wrecked and two men who were under it repairing a truck were killed.

On the afternoon of the 23d a passenger train on the New York & Long Branch road ran over a misplaced switch and into some freight cars standing on a siding at Asbury Park, N. J. Several cars were wrecked and a man badly hurt.

On the afternoon of the 23d a wood train on the Northern Pacific ran into the rear of a construction train at Heron Siding, Idaho, wrecking the engine and several cars, killing 18 Chinese laborers, injuring the engineer, fireman and 25 Chinamen.

On the evening of the 23d a freight train on the Missouri Pacific road ran into the rear of a passenger train at Independence, Mo., doing some damage.

On the afternoon of the 24th a passenger train on the Brooklyn, Flatbush & Coney Island road ran over a misplaced switch and into an empty passenger train on a siding at Brighton Beach, N. Y. The engine upset and several cars were damaged.

On the evening of the 25th a freight train on the Southern Pacific road ran into the rear of an emigrant train near Ravenna, Cal., wrecking a car, killing one passenger and injuring another.

Very early on the morning of the 26th a freight train on the New York & New England road broke in two near Hop River, Conn., and the rear section ran into the forward one, wrecking five cars and injured a brakeman slightly.

On the morning of the 27th a freight train on the Galveston, Harrisburg & San Antonio road ran over a misplaced switch and into another freight standing on a siding at Waelder, Tex. The engine and several cars were badly broken and the fireman killed.

On the evening of the 27th a wild engine on the New York, Lake Erie & Western road ran over a misplaced switch and into a freight train standing on a siding in Owego, N. Y. The engine was damaged and seven cars wrecked.

On the afternoon of the 28th a freight train on the Pittsburgh, Cincinnati & St. Louis road ran into the rear of a preceding freight which had broken in two near Mingo Junction, O., wrecking two cars.

On the morning of the 27th a passenger train on the South Carolina road ran over a misplaced switch and into two freight cars standing on a siding near Charleston S. C. The engine and both cars were wrecked; the engineer, who stuck to the engine and put on the air brakes, was killed, and the fireman so hurt that he died the same day. A section-master, who left the switch open, was arrested and held for trial.

BUTTING.

Very early on the morning of the 7th a freight train on the New York, Lake Erie & Western road stopped at Otisville, N. Y., to switch out a car. When the engine was detached the rear cars started off down the steep grade, and after runing a mile or so met another freight train coming up. The engine of this train and twelve cars were badly wrecked and three trainmen hurt. It is said that all three of them were asleep in the caboose and made no effort to stop their train.

On the evening of the 7th there was a butting collision between a passenger and a freight train on the New York & New England road, near Willimantic, Conn. Both engines were damaged and an engineer hurt.

On the morning of the 14th a wild engine on the Central Railroad of New Jersey was crossing over the tracks to a siding at Glen Gardner, N. J., when it met a coal train, and both engines and 15 cars were wrecked.

On the morning of the 17th there was a butting collision between two work-trains on the New York, West Shore & Buffalo road in Utica, N. Y. Both engine and several cars were wrecked. There was a dense fog at the time. Six laborers were hurt.

On the evening of the 20th there was a butting collision between a passenger train and a yard engine on the Chicago, St. Louis & Pittsburgh road in Indianapolis, Ind. Both engines were damaged and an engineer slightly hurt.

On the afternoon of the 24th there was a butting collision between two freight trains on the Chicago & Alton road, near Kansas City, Mo. Both engines and several cars were wrecked.

On the evening of the 26th there was a butting collision between two freight trains on the St. Louis, Iron Mountain & Southern road, near Knobel, Ark., by which both engines and 20 cars were damaged.

On the afternoon of the 27th there was a butting collision between a passenger and a freight train on the Canadian Pacific road, near Rat Portage, Manitoba. Both engines and several cars were wrecked. The accident was caused by a neglect to obey orders on the part of the freight conductor, who disappeared after the accident.

CROSSING.

On the afternoon of the 22d a passenger train on the Pennsylvania Railroad ran into a Reading & Columbia passenger train at the crossing in Dillerville, Pa. The Pennsylvania engine was damaged, and the other engine upset.

On the afternoon of the 28th a coal train on the Delaware, Lackawanna & Western road ran into a New York, West Shore & Buffalo construction train at the crossing in Utica, N. Y. The West Shore engine was wrecked, a laborer killed, the engineer, fireman and a laborer hurt. It is said that the signalman at the crossing was not at his post and no signal was shown.

About noon on the 30th a passenger train on the New York, New Haven & Hartford road ran into a New York & New England passenger train at the crossing in Hartford, Conn. Both engines and a baggage car were wrecked, an engineer, three brakemen and six passengers hurt. It is said that the proper signals were not shown.

DERAILMENTS.

BROKEN RAIL.

On the afternoon of the 19th a passenger train on the Minneapolis, Lyndale & Minnetonka road was thrown from the track near Lyndale, Minn., by a broken rail. Three passengers were slightly hurt.

BROKEN FROG.

On the morning of the 26th a coal train on the Chicago & Eastern Illinois road was thrown from the track near Chicago, Ill., by a broken frog. The engineer was caught under a coal car and crushed to death.

BROKEN BRIDGE.

On the night of the 15th a freight train on the Alabama Great Southern road broke through a bridge near Attalla, Ala., and six cars went down into the river. A brakeman was killed and another hurt. The bridge was an iron truss bridge.

On the morning of the 28th an iron bridge near Norwalk, Wis., on the Chicago & Northwestern road gave way, under a freight train drawn by two engines, and both engines and several cars went down into the river. A fireman was killed and an engineer badly scalded. One abutment of the bridge had been nearly washed out.

SPREADING OF RAILS.

On the morning of the 8th two cars of a freight train on the Cincinnati & Eastern road were thrown from the track near Irvington, O., by the spreading of the rails.

On the evening of the 9th several cars of a freight train on the St. Louis, Iron Mountain & Southern road were thrown from the track near Arcadia, Mo., by the spreading of the rails.

On the afternoon of the 12th a freight train on the Toledo, Cincinnati & St. Louis road ran off the track near Dayton, O., and the engine rolled down a high bank, killing a brakeman and injuring the engineer and fireman. The accident was caused by the spreading of the rails.

On the afternoon of the 21st a passenger train on the Manhattan Beach road was thrown from the track near Kowenhoven, N. Y., by the spreading of the rails. The engine was badly damaged.

On the evening of the 22d a passenger train on the Grand Trunk road was thrown from the track near Brockville, Ont., by the spreading of the rails. Several cars were damaged and one passenger hurt.

On the evening of the 26th the engine and five cars of a freight train on the St. Louis, Iron Mountain & Southern road was thrown from the track at Curtis, Ark., by the spreading of the rails.

On the morning of the 30th a passenger train of the New York, Lake Erie & Western road was thrown from the track near Avon, N. Y., by the spreading of the rails.

On the afternoon of the 30th a freight train on the Central Pacific road was thrown from the track near Summit, Cal., by the spreading of the rails. The engine was a very heavy one, just from the Sacramento shops, and was making a trial trip. Five trainmen were hurt.

BROKEN WHEEL.

On the morning of the 14th the tender of a passenger train on the Chicago, St. Paul, Minneapolis & Omaha road was thrown from the track near St. James, Minn., by a broken wheel.

BROKEN AXLE.

On the morning of the 6th several cars of a gravel train on the New York & New England road were thrown from the track in Dorchester, Mass., by a broken axle. A brakeman was killed and another hurt.

On the morning of the 20th some cars of a freight train on the Ohio & Mississippi road were thrown from the track near Vincennes, Ind., by a broken axle.

On the evening of the 22d the engine of a freight train on the New York, Lake Erie & Western road was thrown from the track in Port Jervis, N. Y., by a broken axle.

On the morning of the 23d the tender of a passenger train on the New York Central & Hudson River road was thrown from the track near Lockport, N. Y., by a broken axle.

BROKEN TRUCK.

On the afternoon of the 19th a freight train on the New York & New England road was thrown from the track near Bristol, Conn., by a defective truck under one of the cars. Three cars were wrecked and trains delayed three hours.

On the morning of the 20th some cars of a freight train on the Ohio & Mississippi road were thrown from the track near Vincennes, Ind., by a broken truck.

On the morning of the 21st a car of a freight train on the New York Central & Hudson River road was thrown from the track in Rochester, N. Y., by a broken truck.

ACCIDENTAL OBSTRUCTION.

On the night of the 18th a passenger train on the Baltimore & Ohio road ran into a tree which had been blown down across the track near Irontown, W. Va. The engine and four cars were thrown from the track, and two trainmen hurt.

On the afternoon of the 27th several cars of a freight train on the New York Central & Hudson River road were thrown from the track near Waterloo, N. Y., by a broken brake-beam falling down on the rails.

CATTLE.

On the afternoon of the 3d a freight train on the Missouri, Kansas & Texas road ran over a cow near Waco, Tex., and the engine and nine cars were piled up in a bad wreck. Three trainmen were hurt.

On the morning of the 6th a freight train on the Wabash, St. Louis & Pacific road ran over a cow and was thrown from the track near St. Francisville, Ill., 11 cars going into the ditch.

On the morning of the 13th a freight train on the Elizabeth, Lexington & Big Sandy road ran over some cattle near Thompson, Ky., and the engine and five cars were thrown from the track.

On the afternoon of the 22d a freight train on the Northern Pacific road ran over a cow near Winlock, Wash. Ter., and three cars were thrown from the track. Two brakemen were slightly hurt.

Early on the morning of the 30th a freight train on the Baltimore & Ohio road ran over a cow near Cambridge, O., and the engine and fifteen cars were piled up in a bad wreck. The fireman was hurt.

WASH-OUTS AND LAND-SLIDES.

On the afternoon of the 6th a passenger train on the Jeffersonville, Madison & Indianapolis road ran into a wash-out, near Seymour, Ind. The engine went down, and three cars were piled up on it and wrecked. The engineer, fireman, baggageman, and sleeping-car conductor were killed.

On the night of the 9th a freight train on the Western North Carolina road was thrown from the track near Salisbury, N. C., by a land-slide.

On the night of the 9th the engine of a freight train on the Western North Carolina ran into a wash-out near Salisbury, N. C., and was upset into the gap.

On the night of the 9th a repair train on the Western North Carolina road ran into a wash-out near Salisbury, N. C., and the engine and several cars were piled up in the gap.

On the morning of the 19th a freight train on the New York, Lake Erie & Western road ran into a land-slide near Hawley, Pa., and the engine and eight cars were thrown from the track.

WIND.

On the evening of the 10th several cars of a freight train on the Ohio & Mississippi road were blown from the track near North Vernon, Ind., by a cyclone.

On the night of the 10th a passenger train on the Kansas Central road was blown from the track near Clay Centre, Kan., by a tornado. Three cars were wrecked, four trainmen and five passengers hurt.

On the afternoon of the 11th four cars of a freight train on the Chicago & Northwestern road were blown from the track and wrecked by a tornado near Elmo, Wis. A brakeman was hurt.

MISPLACED SWITCH.

On the afternoon of the 10th the engine and two cars of a passenger train on the Central Pacific road were thrown from the track in Oakland, Cal., by a misplaced switch.

On the afternoon of the 20th a passenger train on the Chicago, St. Paul, Minneapolis & Omaha road was thrown from the track in East Minneapolis, Minn., by a misplaced switch. The engineer was killed and two trainmen hurt.

On the morning of the 23d the engine and one car of a passenger train on the Wheeling & Lake Erie road were thrown from the track at Newcomerstown, O., by a misplaced switch.

On the night of the 26th the engine of a freight train on the Chicago, Burlington & Quincy road was thrown from the track in Princeton, Ill., by a misplaced switch.

MALICIOUSLY CAUSED.

On the evening of the 9th the engine and several cars of a freight train on the Chicago & Northwestern road were thrown from the track near Rosehill, Ill., by a tie which had been fastened across the rails.

Early on the morning of the 20th the engine and three cars of a freight train on the New York City & Northern road were thrown from the track near South Yonkers, N. Y., by some rocks which had been placed on the track by some persons unknown.

UNEXPLAINED.

Early on the morning of the 2d the engine of a freight train on the Chicago & Grand Trunk road ran off the track in Chicago, Ill., and the engineer was slightly hurt.

On the evening of the 5th a passenger train on the St. Louis & San Francisco road was thrown from the track near Lebanon, Mo., and several cars went into the ditch.

On the night of the 5th some cars of a freight train on the Lake Shore & Michigan Southern road ran off the track near Dunkirk, N. Y., blocking the road two hours.

On the morning of the 9th three cars of a freight train on the Jeffersonville, Madison & Indianapolis road ran off the track near Rockford, Ind., blocking the road two hours.

On the evening of the 10th two cars of a passenger train jumped the track at East Cambridge, Mass., on the Boston & Lowell road.

Early on the morning of the 14th some cars of a freight train on the St. Paul, Minneapolis & Manitoba road ran off the track near Sauk Centre, Minn., blocking the road three hours.

On the morning of the 14th several cars of a freight train on the Chicago, St. Paul, Minneapolis & Omaha road ran off the track near Elroy, Wis., blocking the road two hours.

On the 16th a freight train on the Cincinnati Northern road ran off the track near Kennedy, O., doing some damage.

On the evening of the 19th three cars of a freight train on the Fort Worth & Denver road ran off the track in Henrietta, Tex., blocking the road four hours.

On the morning of the 21st an excursion train on the Wilmington & Northern road ran off the track near Chadd's Ford, Pa., and the engine went down a bank into a tree.

On the morning of the 24th the engine of a freight train on the Cincinnati Northern road ran off the track in Cincinnati, O., delaying several trains.

On the morning of the 26th a car of a freight train on the New York & New England road jumped the track in Springfield, Mass., blocking the road several hours.

On the afternoon of the 28th a car of a freight train on the New York Central & Hudson River road ran off the track near Pittsford, N. Y., delaying trains an hour.

On the afternoon of the 30th two cars of a freight train on the Richmond & Allegheny road ran off the track near Wigina, Va., and pitched over into the dry bed of the old canal.

OTHER ACCIDENTS.

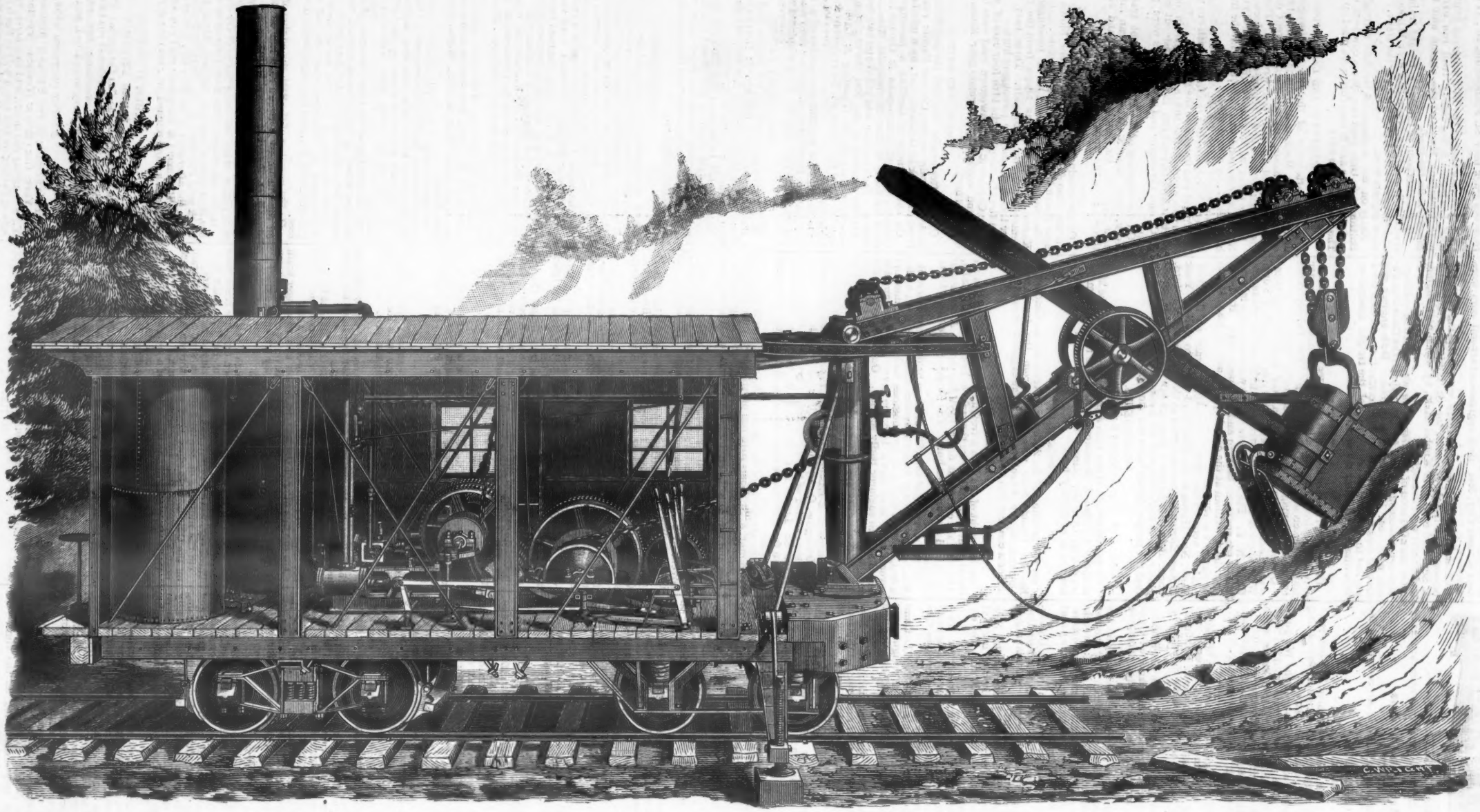
BOILER EXPLOSION.

On the morning of the 5th the engine of the pile-driver train on the Memphis & Charleston road exploded its boiler at Lagrange, Tenn., wrecking the engine completely. The engineer and fireman were killed, and two other trainmen hurt.

BROKEN COUPLING RODS.

On the evening of the 21, as a passenger train on the New York, Lake Erie & Western was near Gaymard, N. Y., a coupling rod broke, and the loose end wrecked one side of the engine and tore a hole in the boiler.

On the morning of the 11th the engine of a passenger train on the New York, Lake Erie & Western Road broke a



COMBINED STEAM SHOVEL AND WRECKING CAR.

Built by the BUCYRUS FOUNDRY & MANUFACTURING CO., *Bucyrus, Ohio.*

coupling rod when near Port Jervis, N. Y., doing some damage.

SUMMARY.

This is a total of 91 accidents, in which 38 persons were killed and 95 injured; an increase of 19 accidents and of 3 persons killed, and a decrease of 98 injured, as compared with June of last year.

The six months of the current year to the end of June show a total of 811 accidents, 221 killed and 808 injured; a monthly average of 135 accidents, 37 killed and 135 injured. June was below the average for the half-year, except in the number of killed.

Combined Steam-Shovel and Working Car.

The new iron steam-shovel and derrick car, a cut of which we present herewith, has many features which commend it to the careful attention and examination of railroads and contractors. Without entering into any detailed description, we can give a few of the points which, it is claimed, render this machine the superior of any steam excavator ever offered to the public. Realizing that the liability to breakage in excavators, as they have heretofore been built, has been a most serious obstacle in the way of their general adoption, the makers have made it their aim to build a machine which should not only be quick and efficient in its working, but also the strongest and most durable ever made. With this end in view, the body of the car is made entirely of wrought iron channel and I-beams, which, with the heavy pitch-pine flooring, make a most substantial foundation for the machinery to rest upon. All the running gear is fitted to Master Car-Builders' standards, a feature on which railroad men need no comment; it consists of four pairs of 33-in. wheels, the two rear pairs running under a centre-bearing truck of the strongest possible build, while the two forward pairs fit into pedestal-jaws. Owing to this arrangement, the car will ride safely around the sharpest curve known in railway construction. All the machinery is as simple as the highest degree of efficiency will allow, the idea being that complex machinery only confuses the engineer, affords more chances for breakage, and takes from, rather than adds to, the general practical efficiency of the machine. One powerful double engine hoists the dipper, swings the crane, and moves the car; and the thrusting movement consists of a steel rack and pinion, with friction belt operated by independent double cylinder engine, on the crane, which takes the place of the rotary engine, shown in the drawings, but now no longer used. The driving shaft is of Otis steel, and all other shafts of best hammered iron. The crane is entirely of wrought iron, and the crane-post is made of finest charcoal iron, and guaranteed against breakage, while the hoisting and swinging chains are of the best English make. By an effective arrangement the car is made self-propelling, which renders its movement in the pit and elsewhere quick and easy. An important feature, and one of recent invention, consists of the wrought iron jack arms, extending 3 ft. 8 in. from the side of the car, and allowing the bucket to work at right angles to the shovel. The crane is supplied with a patented device, whereby it can be prepared for transportation from place to place, or for use as a wrecker and derrick car, in 20 minutes. The total weight of the complete shovel is 33 tons.

The builders claim for this machine great advantages over any other. Its capacity under favorable conditions is six cubic yards per minute, and it has frequently loaded 200 cars in one working day.

These machines are manufactured by the Bucyrus Foundry & Manufacturing Co., of Bucyrus, Ohio. One of them was exhibited at the Chicago Exposition of Railway Appliances.

Contributions.

What is the Frog Number?

LAMBERTVILLE, N. J., July 21, 1883.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I beg leave to call attention to what appears to me to be erroneous in Mr. W. Griswold's rule, published in your issue of 20th inst., for finding the position of the frog as related to that of the switch. His rule assumes that the frog number is the quotient of the base into the longest side of a right-angled triangle having the frog angle at its apex. I understand that it is the quotient of the base into the perpendicular of an isosceles triangle having the frog angle at its apex. This being so, connect c in his diagram with a point we will call d on the opposite rail, by a line drawn at right angles thereto. This line is equal to the gauge, and is half the base of a triangle such as I have described, since $a\ c$ bisects the frog angle, and hence $\frac{a\ d}{2\ c\ d}$ = the frog number. Call this n, and the gauge g, and $a\ d = 2\ g\ n$. It is manifest that $a\ b + b\ c$ is greater than $a\ d$, and hence each is greater than the gauge multiplied by the frog number. Each in fact equals $g\ \frac{n\ 2 + \frac{1}{4}}{n}$, which for the example stated is 30.3 ft., instead of 30 ft., as stated.

J. A. ANDERSON, Division Superintendent.

A Diagram for Train Dispatchers.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have often been impressed with the same idea that prompted your correspondent, in your issue of the 13th inst., to write his article on "A Diagram for Train Dispatchers," namely, the great possibility existing of making mistakes in sending out train orders, under the present method of keeping the record on a sheet merely, without any means of telling at a glance where each train upon the road is situated. The diagram board that he proposes is, at the best, however, rather bulky, and I think I can recommend one that may be manipulated in the same manner, will be fully as convenient and will occupy far less space than the one your correspondent suggests.

In applying it to such a road as has been suggested namely, 200 miles in length, with 40 stations and a single track, let the board be 42 in. long and 2½ in. wide, or half the length and twice the width. Supposing the former to be used, paint the board white and draw a red line to represent the main track lengthwise the board and about one inch from one edge. At intervals of one inch apart draw vertical black lines to indicate the stations, and over each place the name of the station represented. On each station line bore three holes, one on the red line and one on each side of it; between the stations bore three holes on the red line, so that three trains or sections may occupy that position on the track and the diagram at the same time, the trains to be represented by small wooden pins, colored red or white, according to the direction in which it may be moving. Let there be two small cases, such as are used in shops for holding stamping alphabets, containing a supply of pins, each pin to have a number on its head, and let there be one for each train and engine on the road. The manipulation is, of course, identical with that of the diagram proposed by your correspondent, except that it may lie upon the desk just over the train sheet, and will be but a trifle longer than that all important record. GEO. L. FOWLER.

EAST SAGINAW, Mich., July 19, 1883.

Handling Freight in England at Docks.

TO THE EDITOR OF THE RAILROAD GAZETTE:

To every railroad man of any country it is always interesting to see how other countries have developed their systems. The same ends may often be attained by different means, depending on the temper of a people, or on the quantity and quality of the goods to be carried. But the same principles are always at work. How can we carry men and women from one place to another with the greatest comfort, speed and safety, and how can we convey merchandise and minerals in the cheapest and most expeditious manner without damaging them?

It is to a large extent an appreciation of the manner in which grain, barrels of oil and other materials are handled in the United States that has led me to the belief that many railroad men in America would be interested in hearing about, if not seeing, the manner in which freight is handled in England. The conditions of the two countries as to distances and climate are very different, the latter facilitating the more general use of hydraulic power in England, where, however, it is by no means an unknown event, though certainly exceptional, to find that the thermometer has been down below zero in the night, and no harm come to the hydraulic machinery, which has to be specially cared for during such periods.

It is to the termini of the great public highways of the world, whose rails never wear out, and whose motive power is given to any one who will set sail, that we must look for the oldest as well as the newest facilities for handling freight; and perhaps on no shore are there ports like London and Liverpool, where a greater variety of ways, as well as a greater perfection of methods, can be seen for transferring freight from the ocean to the land. At any rate the amount of freight passing through these two ports is large enough to have encouraged the very best methods of handling the exports and imports. For in 1875 as many as 14,600 vessels were unloaded in Liverpool, and 44,000 vessels of a smaller average size in London, between which year and 1881 the traffic into British ports increased 25 per cent., so that it matters very considerably to the commerce of the nation how these millions of tons are transferred from the holds of vessels to their destinations, and again, how the still greater amount of export freight is conveyed to the ships.

As is doubtless well known, the great tide of from 10 ft. to 21 ft. at Liverpool has made it necessary to erect seawalls and docks at any place where a vessel is to land, thus placing the port at a great disadvantage compared with such places as New York or Philadelphia, where a few rows of piles and a wooden shed are ample accommodation for an ocean steamer. Liverpool at the beginning of this century possessed two miles of these docks, and now they extend for seven miles along the river, containing 23 miles of quay wall, as well as a considerable distance on the other side of the river, in Birkenhead. A railroad for freight only or goods (*goods* being the word universally used in England for *freight*) runs along this line of docks and sheds; but a very large portion is conveyed in lorries drawn by large horses to the warehouses in the town. These great, noble-looking horses are the most striking objects to be seen in the streets along the docks; and the broad wheels of the lorries look as if they were made for traffic on soft ground instead of on the universal granite pavement.

The older warehouses are all of the same type, being seven or eight stories high, each provided with one or more cranes reaching from the roof into the lorry below, and serving to raise or lower goods to or from each story of the warehouse; these cranes being worked generally by steam, but too often by hand. The rapidity with which a sack of flour or bale of cotton is picked up and whisked into the top story of these lofty warehouses is, however, astonishing.

Where large quantities of the same material are constantly imported, such as grain and timber, special apparatus is employed, which I do not intend to dwell upon here; but it may be mentioned that large timber is carried along the streets suspended from the axle of a pair of strong wheels, 10 ft. in diameter, and only raised a few inches from the ground, the front end of the timber being kept off the ground by a much smaller pair of wheels, which do not take much weight. These large-wheeled timber wagons form conspicuous objects in the neighborhood of Canada Dock, where most of the large timber is landed.

Before entering the railroad warehouses, let us pass up up the river a few miles to Garston, and see a couple of isolated docks, where the traffic consists largely of coal and small timber. Garston Dock belongs to the London & North western Railway, and its line comes to the water's edge, very much in the same way as some of the large railroad companies do at Jersey City. There are no storage warehouses here, but an admirable system of hydraulic cranes lifts the cargo from the hold of the vessel straight into the railroad cars. There are 23 hydraulic cranes along the dock, some of which are fixed and others portable. The vessel is berthed so that one of its batchways comes opposite one of the fixed cranes, and the portable one is then temporarily fixed opposite the other hatch, so that both cranes can work at the unloading simultaneously. The main difficulty with these portable cranes is that they are necessarily so exposed and therefore in very cold weather are liable to freeze up—an objection which has been almost entirely overcome, in regard to the fixed cranes, by casing in their working parts and keeping gas jets burning below the cylinders during very cold spells.

The dock gates are also opened and closed by hydraulic power, and thirteen hydraulic capstans are distributed about the yard, one of which is especially powerful, and is used for hauling vessels in and out of dock.

The hydraulic pressure for working this machinery is supplied by two double direct-acting pumps, with cylinders 18 in. × 18 in., and rams 4 in. in diameter. These engines have made an average of seventeen strokes per minute for the last two years, using steam at 60 lbs., and pumping water at 750 lbs. per square inch. As the machinery is distributed over a large area, it is found advisable to have three accumulators placed far apart, in order to prevent a sudden rush of water along any great length of pipe.

This system of hydraulic machinery in the open air is no doubt very complete at Garston, but the same kind of thing has been successfully carried out at many other places. At Hull, for instance, in the year 1875 it was applied in a more co-operative system. The Hull Hydraulic Power Co. laid down a 6 in. main along the line of docks and warehouses, into which it forced water (and by no means clean water) at from 600 to 800 lbs. pressure. This was rented to any one who wished to use hydraulic machinery; and proved very useful to many who wished to have one or more cranes, for which it would not have been economical to erect pumping machinery.

One of the most extensive examples of the use of hydraulic power at docks is at Poplar, on the Thames, which is perhaps worth a word or two of description. It is here that three of the great trunk lines from London to the north, and also the North London Railway, have their freight warehouses by the docks; and these four powerful railroads have united in one hydraulic system all their cranes, wagon-tips, capstans and swing-bridge. The commodious engine and boiler house stands well out of the way of all the traffic, and from it a 6 in. pressure main leads underground, supplying power to the machinery about the yard and docks, and thence up to the top floors of the warehouses, while a return pipe runs side by side with the pressure pipe to take all the water back again to the engine-house; and in this manner a great saving is effected in the consumption of water. This system of returning the water back to the pumping station involves a good deal of expense, and a certain amount of back pressure; but it is generally adopted, unless water be very abundant, on account of the large quantity used by the hydraulic machinery, which in this system at Poplar reaches as much as 224,000 gallons in one day. The engine-house contains six direct-acting pumps, each with a pair of cylinders 16 × 20 in. stroke and with rams 3⅝ in. in diameter, the total number of revolutions in the engine-house in one day having reached as many as 150,000. Of course this is not the full power of the pumping machinery, but it is always advisable to keep one or more of the engines standing, in case of any temporary derangement of leathers, which, however, very seldom happens. Six large horizontal boilers, each with a single flue, supply steam at 60 lbs., and the pressure in the main is 750 lbs. per square inch, which seems to be the pressure universally adopted for crane machinery in England. Several of the boilers are kept out of steam, to enable them all to get periodically cleaned.

Among the cranes in this system are several of large size standing out of doors; one of 30 tons capacity, one of 12 tons and one 10 tons, the two latter having smaller cylinders, which can be used instead of the larger ones in order to save water when the cranes are used for lighter lifts. But this precaution, though very ingenious, is not found to be of much use; for, where no visible advantage can be obtained by the use of the smaller cylinder, it is difficult to get an ordinary man to take the trouble of changing the gear. A good deal of trouble was experienced at first from the freezing of the water, and the consequent bursting of some of the hydraulic cylinders, especially among those cranes which stand outside and are little used, and also during Sundays. But this difficulty has been overcome by keeping everything underground where possible, by casing in the bases of the cranes, and by keeping three or four gas jets burning just beneath the cylinders during the very cold weather. Besides the larger cranes above mentioned, there are several of 5

tons and a large number of 3 and 2 tons capacity, as well as those in the upper parts of the warehouses.

It will be seen from the large size of many of these cranes that some of the largest articles, such as boilers, locomotives, sugar machinery, and other large castings come here to be shipped. But there is also a considerable shipment of coal from this dock, for which there are six wagon-trips. Each of these consists of a table on the wharf, with a vertical hydraulic cylinder underneath, the ram of which is hinged to the side of the table farthest from the ship which is being loaded. The wagons are run on to the table either with their end or side toward the ship, according as they are constructed with a false side or end; and the cylinder, acting directly on the table, tilts the wagon till the whole of its contents slip down into the hold of the vessel. The table is then brought to its original position, the empty wagon drawn off by a capstan, and the process repeated without the slightest physical exertion on the part of those who are apparently doing the work.

All this machinery is easily supplied with pressure, and, were it not for the capstans, which use so much water, very much less motive power would be required; but the convenience of being able to start and stop these capstans with the foot, thus leaving both hands free for manipulating the rope, is so great that it far outweighs the extra fuel which is consumed in the boiler-house. But, as I hope to return to these greedy but useful little laborers, the capstans, I will not say more about them now. One swing bridge completes the list of machinery on this circle of underground pipes.

There are three accumulators, one near the engine-house and the other two placed where there is a great deal of work going on, and which thus considerably relieve the pipes of any sudden strain.

I have spoken of the disadvantages of the hydraulic system, where the exposed parts of cranes are apt to be frozen even in the warehouses, when care is not taken to keep some artificial warmth near them; I have also indicated the waste of power in using more water than is necessary to do the work, both in capstans and in cranes used for lighter lifts, than they are intended for; but the advantages of the system are far more apparent and important, to any one who will compare any large quantity of machinery of this nature, working independently by steam or hand power, with an organized system such as any of those which have here been described.

It is cleaner in having no fuel lying about. It is safer in having no boiler near the goods or warehouses. It is steady in its action. It can never be worked beyond its full power, and therefore cannot be broken by overstrain.

Having attempted to give an idea of the extent to which hydraulic machinery is used for dock purposes, I hope to describe in my next letter one or two of the more important goods warehouses of Liverpool.

MANCHESTER, England. EDGAR WORTHINGTON.

Train Rules.

XII.

SECTION MASTERS.

In the case of the section master or supervisor we can, more clearly than elsewhere, see the propriety of placing all of one person's instructions together by themselves. His rules, or most of them, are generally not only left out in the manual, but are not even called into existence, except in oral form.

The rules here collated are such as are generally found in the codes of roads that do not issue full instructions to trackmasters concerning all of their work and its details; where such a work is provided, some of these rules, such as 164, 168, 171 and 177, would be more properly omitted from those belonging more distinctively to the train department.

TO SECTION MASTERS.

164. You must never allow any work done on your section except under the direction of an employé of the company who fully understands these rules and knows that he must be governed by them.

[165. Keep red flags, etc., on hand.]

[166. Find out what trains are due, when coming on duty, etc.]

[167. Notice red and green signals on passing trains.]

168. You must see that the whole of the line under your supervision is examined every day, including Sunday; and whenever storms, thaws, snows or other causes render it necessary you must have the road *constantly patrolled* by your most experienced men, provided with red signals and torpedoes, as long as there is any likelihood of damage to the track.

169 (*a*). Whenever you know, or have reason to believe, that any track is unsafe for the passage of fast trains, and (*b*) *always ten minutes before you begin any work that will render the track unsafe* for fast trains, you must send out one of your most experienced men with a signal to stop any train that may approach. (*c*) The signal should be, in the daytime, a bright red flag, and in the night two red lights. The person carrying the signal must be provided with two torpedoes, which must be fastened to the rail at least half a mile from the obstruction, in case there is a storm or fog, or the view is short.

(*d.*) The flag or light must be shown at least a half a mile from the obstruction, where it can be seen from the engineman's side of an approaching train.

(*e.*) On single track, signals must be sent both ways.

(*f.*) In clear weather, when no train is due, the man need not remain with the signal; but in that case he must leave two torpedoes fastened to the rail.

(*g.*) When no *first, second or third-class* train is due, the man need not remain with the signal, provided you can see it and keep watch of it; but in that case he must leave two torpedoes fastened to the rail.

170. On week days, between 6:40 and 7:20 a. m., and between 5:40 and 6:20 p. m., you may run hand cars on any track on which no train is due; but *at all other times* you must be prepared for a *fast train at any moment*, never running a hand car or obstructing the track in any way without first sending a man with red signal and torpedoes, as directed in Rule 169.

Enginemen running without notice during the hours named will look out for you, but will look for *only one gang on your section;* if you have the track obstructed at more than one place, the man in charge of either gang must warn enginemen to look out for the other.

171. When your men are at work upon the track you must watch the approach of every train, and personally see that each man gets out of the way in good season.

172. In placing wood, lumber, etc., near the track, you must always clear the rail .... feet.

173. Whenever you know, or have reason to believe, that there is a fire on or near the company's premises, you must at once do all in your power to preserve the company's property, even if the fire is not on your section.

174. You must report to the division road master all cases of animals killed or injured by trains, and all fires set by sparks from engines, if there is any damage to property.

175. You must send to the nearest station agent all articles of value lost from trains which you may find on the road.

176. You must call on the station agent nearest your headquarters *every day* for any letters or orders he may have for you.

177. You must watch the telegraph lines and do all in your power to repair them whenever they are out of order and no telegraph repairer is at hand. You must report to the nearest telegraph office any serious damage that remains two days without being attended to.

[178. Responsible for switches turned.]

Rule 171 is an old-fashioned one, and is now omitted by a good many roads; but it seems to be a very reasonable one, and even if the foremen are all supposed to be disposed to observe it (whether told to or not), it might do good in the way of securing uniform practice. A person *at work* on the track is not so well situated to look out for himself as a mere idler or a pedestrian, and *two* persons (himself and the foreman) are none too many to guard a workman against danger under such circumstances.

Rule 173, as written here is, perhaps, rather broad, but it concerns a matter in which it is much better to do too much than too little.

Section masters cannot be expected to have much technical skill in the repair or maintenance of telegraph lines, and minute and specific directions in regard to them are, I believe, generally thrown away; but they ought at least to have a general interest in them, as directed in Rule 177. They are certainly not likely to do any *more* harm than good.

In conclusion, one or two things should be remembered. In the first place, no attempt has been made to mention every subject that can possibly be regarded as necessary. Many roads regarded as models in management get along without some of the rules that are here treated as important ones; but I believe I have not omitted any of theirs that really belong to that class. The chief aim has been improvement in arrangement; a properly arranged code can be amplified or condensed with comparative ease, but one that is arranged poorly or not at all cannot be in any degree altered without shattering the whole.

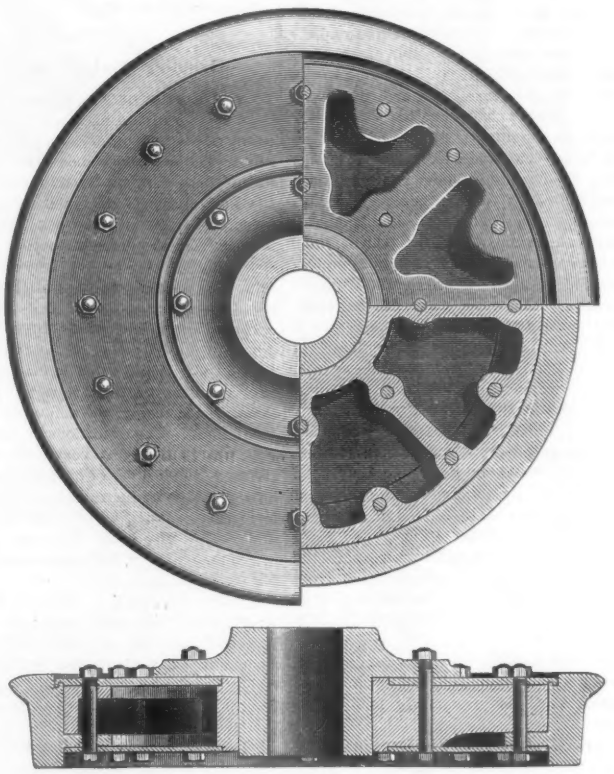
Although the chief portion of the writer's task has been the arrangement and exposition of the previously expressed ideas of others, he has taken frequent occasion to give his own opinions; and, though each one has not been preceded by a bow, he trusts he has spoken with proper diffidence. With busy people poor or worthless ideas are not improved by apologies, and good ones, it is said, are never affected either by excessive modesty, or even by too many *trimmings of brass.* Therefore, as the readers of the *Railroad Gazette* are presumably among the fastest of this proverbially fast race, the aim has been to omit the non-essentials, and thus economize the reader's time.

It is, of course, unnecessary to say that there has been no attempt at *exhaustive* treatment of the topics discussed. The great variety of principles involved and of conditions under which they are to be applied forbid that, if nothing else does; so I leave it for abler hands.

There have been a few annoying blunders, either in penmanship or type setting, but most of them have been such as would be readily discerned and corrected by the reader.

Snow's Steel-Tired Wheel.

The engravings represent a new steel-tired wheel designed and patented by W. W. Snow, the well-known head of the Ramapo Wheel & Foundry Company. From the engravings it will be seen that the hub is made in a separate piece from the body of the wheel-centre, and the latter is made to fit on a cylindrical bearing on the hub. The wheel-centre consists of a casting similar to the spider of a piston. The tire has an internal flange similar to that used on the tires of the Allen paper wheel. The outside and back of the steel tire and wheel-centre have each a wrought-iron plate bolted to them. The periphery of the inside plate has a flange which fits into a groove in the tire, and thus forms a retaining ring. The two plates, the tire and the wheel-centre are bolted together with bolts which pass through each of them. The hub has a large flange on the inside, and this is also bolted to the plates and wheel-centre by bolts shown in the engraving.



SNOW'S STEEL-TIRED CAR WHEEL.

It is claimed for this wheel that the inside flange gives the maximum of strength to the tire, and that the flange on the inside plate being fastened by the bolts will hold the tire securely in case of its breakage.

When steel tires are used it happens often that the flange of one wheel of a pair is worn so much that it is necessary to take off from 3/8 to 3/4 in. in order to get a good flange. A very considerable economy would result in such cases if, instead of being obliged to turn down both tires, the much worn tire could be removed and the one which is little worn be matched with another in the same condition. In this way hard and soft tires would be paired or matched by others of the same quality. With this end in view the hubs of Mr. Snow's wheels are made of uniform size so that the centres on one can be removed and another with its tire substituted by simply removing the bolts which hold the wheel centre and hub together. This results in a great saving in the turning of tires which are worn little, but which are on axles with another tire which is worn much.

It is obvious, also, that the hubs of these wheels can be removed and new hubs substituted in case it should be necessary to use an axle with smaller wheel-seats with any pair of wheels. It will be seen that either the tire or the hub can be removed separately from the body of the wheel and re-applied with new ones in any ordinary machine shop, without taking the wheel apart.

The iron central filling piece, it will be observed, gives an abundant support to the tire, and the bolts, which fasten the internal flange and filling pieces together, hold it and the tire securely when the latter is expanded by the action of the brakes.

The address of Mr. Snow is Ramapo, Rockland County New York.

The Late Ginery Twichell.

The Hon. Ginery Twichell died suddenly at his residence at Brookline, yesterday (July 23), of inflammation of the bowels. No man probably has been more intimately associated with the rise and progress of the railroad interests of this state than Mr. Twichell, who began his career as a stage driver and eventually became the chief officer of a number of prominent railroad companies. He was born Aug. 26, 1811, at Athol, Mass., and enjoyed the advantages of a common school education. At the age of 16 he left school to take charge of a portion of the business of Mr. Joel Kendall, an extensive mill owner in Athol. After that he entered the employ of Mr. Samuel Sweetser, the largest dealer in live stock in that section of Worcester County, and subsequently engaged as clerk in Mr. Champney's store in Petersham. At the age of 19 he found employment with a Mr. Stockwell, who ran a stage line from Barre to Worcester. He was placed in charge of the business, and found himself in competition with another line running over the same route, which had the advantages of larger resources and patronage. By patience and kindness, not only to his patrons, but also to his rivals and competitors in business, by the strictest fidelity to all the trusts committed to him, by cheerfulness and imperturbable good humor, by firm adherence to the determination early formed to abstain from all intoxicating drinks, by wise economy in the conduct of his business, he advanced from the position of driver to that of owner; and, finally, by thus conciliating and winning the public patronage exclusively to himself, he drove his rivals from the field. At one time, while engaged in the stage business, the sewing girls of Worcester projected a ride for themselves on a pleasure excursion for the day to a place some 10 miles distant. Mr. Twichell took them, to the number of 62, gratuitously on his pleasure coach with eight horses. After his return a number of the most prominent citizens of Worcester offered him privately some remuneration for this act of kindness, with strong expressions of their own appreciation of his generosity. The coach used on this occasion was built and presented to him by his friends in 1838, and it has been in his possession ever since, and is still in an excellent state of preservation. Mr. Twichell was employed in the capacity of driver for five years, when he secured an interest in the business. So rapid was his success that in 10 years he became sole proprietor of over 200 horses and of several lines of stage coaches between Worcester and various points in the states of Massachusetts, New Hampshire and Vermont.

In 1840 Major Houghton, proprietor of the Boston *Atlas* newspaper, engaged Mr. Twichell to collect the votes of the state on the day of election, so that they could be published in his paper on the following morning. This feat, which was regarded by many as impossible, Mr. Twichell accomplished by having the returns brought by assistants, with relays of horses, from every town of the state to a central route. This was yearly done for 10 years. On one occasion, after voting in Worcester and riding to Greenfield a distance of 55 miles, where he was to receive returns in person, he found that his messengers from Williamstown, Adams and the northwestern part of the state, delayed by the bad weather and traveling, had been unable to leave Greenfield until two hours after the appointed time. Mr. Twichell rode to Worcester in the face of an easterly storm, but arrived 10 minutes after the engine, which started at the hour appointed, had left. He pushed forward on horseback 45 miles farther, and reached Boston in season for his dispatches to appear in the morning *Atlas*. Another remarkable feat was performed by Mr. Twichell in 1846. The leading newspapers of New York were eager to secure dispatches expected to arrive at Boston by the foreign steamers in January of that year. The *Herald* made arrangements to carry its own dispatches from Boston to Norwich by railroad, thence by boat to Long Island, and across the island by rail to New York city. The *Tribune* and other papers of New York and Philadelphia being excluded by the *Herald* from participating in its arrangements with the railroad and steamboat companies on this route, employed Mr. Twichell, who was obliged to use horses for most of the distance. He could obtain an engine to run from Boston to Worcester only on condition of its being 15 minutes behind the *Herald's* train. From Worcester to Hartford, a distance of 66 miles, he rode on horseback through a deep snow in the remarkably short time of 3 hours and 20 minutes; thence from Hartford to New Haven, by railroad, 36 miles; from New Haven to New York, 76 miles, by horses, and reached New York City in season for the printing of the dispatches before the arrival of those of the *Herald*. Mr. Twichell's remarkable feat of horsemanship excited so much interest that it was commemorated by a large and beautiful engraving, entitled "The Unrivaled Express Rider."

Before the extension of the railroad from Norwich to Allyn's Point, at the earnest solicitation of Commodore Vanderbilt for the boats and of President Rockwell for the railroad, Mr. Twichell assumed the task of transporting passengers and freight between the cars and boats for the winters of 1840-41 and 1842 during the freezing of the river. He built a stable eight miles below Norwich, and stocked the road with 10 coaches and one baggage wagon, of four horses each for the passengers, and 10 freight wagons, of four horses each, conveying the passengers, whether 50 or 200 in number, between Norwich and the boat, eight miles, always in the night. Not a passenger was left behind or injured during the two seasons, the freight was successfully transported in the daytime, and Mr. Twichell received great commendation from Commodore Vanderbilt and the president of the railroad for the satisfactory and successful manner in which this enterprise was conducted. The greatly needed railroad from Boston was opened to Worcester July 1, 1835; but Mr. Twichell continued his stage business in connection with the road until June 1, 1848, when he was chosen Assistant Superintendent of the Boston & Worcester Railroad, a newly created office, of which he was the first incumbent. He discharged so well its difficult and often delicate duties that on May 7, 1849, he was elected Superintendent, to succeed Mr. Parker, who had resigned to accept a similar position on the Baltimore & Ohio road. On Oct. 1, 1858, Judge Hopkinson, the President of the road, having died, Mr. Twichell was chosen first Acting President and then President. There were numerous other aspirants for this important position, but Mr. Twichell was the unanimous choice of the board. He retained the presidency until Dec. 1, 1867, and was afterward a director in the Albany & Boston corporation. On Feb. 13, 1877, after an active connection of nearly 29 years with the Boston & Worcester and Boston & Albany Railroad companies, he declined a re-election and received by formal vote the unanimous thanks of the stockholders. When he took charge of the Boston & Worcester road the stock sold at $78 per share, and the road was encumbered with a heavy debt, but when he retired the stock sold at $160, and there was a very large surplus. As a recognition of his valuable services, a vote was passed by the directors placing to his credit $5,000 in addition to his regular salary. The Boston & Albany road and the merchants and business men of Boston are indebted to Mr. Twichell for the benefits derived from the purchase of the Grand Junction wharf, in East Boston, which was secured for the road through his influence. It was during his term of service as President of the Boston & Worcester road that the famous and long-contested controversy between that road and the Western railroads upon the question of prorating freights was had, Mr. Twichell taking a bold stand in favor of the commercial interests of Boston. The ultimate result of this controversy was the consolidation of the two roads. It was also during his presidency that the great dispute with the administration at Washington sprung up as to the transportation of mails over our Massachusetts railroads, and in which Mr. Twichell prevailed.

Mr. Twichell was active in his efforts to aid the cause of the Union during the war fo the rebellion. In various ways he did a great deal for the welfare of the soldiers, and took an active interest in the Soldiers' Home in Boston, during its existence. He was offered the position of Commissary General of the army by the government, but he declined it. Mr. Twichell's entrance into public life was in 1866, when he was nominated and elected to Congress by the Republicans of the third district, succeeding the Hon. Alexander H. Rice, who had declined renomination. Mr. Twichell was re-elected to the forty-first and forty-second congresses. During his six years of public service at Washington, while he did not distinguish himself in debate, he served on important committees, carefully watched the interests of his constituents, and won the same high regard for fidelity and integrity which he had gained in his business associations. A fellow member writing of him in 1868, said: "I can tell better than a stranger to it of the character of his services. And I do testify that no new man in this Congress has done more for his constituents than he. Earnest attention to everything in the minutest details has counterbalanced inexperience and awkwardness in public office, and he has been of more real value to his constituents than, in the same time, any of his predecessors that I have known. The place has come to be, vastly more than in times past, one of detail and drudgery, like a clerkship. Now and then one seeks to make an opportunity for a national reputation and statesmanship, but such men never serve their constituents much. Of course Mr. Twichell does not aspire to be of this class, and therefore he is the more useful." On his retiring from Congress he became associated with several Boston merchants and capitalists in starting the Atchison, Topeka & Santa Fe Railroad, an enterprise now almost entirely controlled in this state, and the financial success of which has been so marked. He was elected its President, a position which he resigned a few years since. The leading feeders of the Boston & Albany Railroad, such as the Ware River and the Boston, Barre & Gardner, measurably grew out of his brains and his knowledge of the wants and facilities of the district. The elevator system in Boston received his hearty advocacy, support and co-operation, and its inception was due mainly to him. From the start he believed in Boston, and anything that could add to her commercial greatness and success met with his hearty approval and cordial support, both in his official and private capacity. He was a man who made friends and retained them. Socially few men were more genial. He was democratic to the core, and no public or political elevation could make him forget his early associations.

Mr. Twichell married early a Miss Ruggles of Barre, by whom he had several children, none of whom survive him. His second wife was a sister of the late General Burt. She and a daughter 14 years of age survive him. To the town of Brookline Mr. Twichell was devoted, and in this, the town of his adoption, where he spent the most useful years of his life, he will be most missed and most truly regretted. —*Boston Advertiser, July 24.*

Rochester Shippers on Freight Rates.

The New York Railroad Commission, in taking up the matter of the investigation of *pro rata* charges for local freights carried by the railroads of the state, has issued a circular to the freighters of the different cities of the state. It quotes the *pro rata* bill referred by the Senate April 6, and asks the following questions:

"First—What were your freight rates upon each railroad patronized by you during the years 1881 and 1882, to and from your principal shipping points?

"Second—To what extent were you a shipper on each road?

"Third—Are you aware of any unjust discrimination in railroad freight classification or charges? If so, state the same fully.

"Fourth—What remedy therefor do you suggest?"

To these questions the principal freight shippers of Rochester have signed the following reply:

"*William C. Hudson, Esq., Secretary:*

"Your circular No. 6, June 11, having been carefully perused and considered, we would respectfully submit the following answers to your questions:

"First—Our freight rates for years past have been governed by many circumstances, such as supply and demand of cars and motive power on our railroads, the nature of the material to be transported, the rate of freight necessary to meet competitions, etc., etc.

"In explanation we would say that there are times when the railroad companies have but little freight moving, when they will make a special rate on certain articles to be moved at once. But at other seasons, when the movement of freight is heavy, and every car and engine brought into requisition, these same articles will be called upon to pay full rates of freight. Again, there may be a large movement of freight in one direction, when a railroad corporation will make a lower rate of traffic to induce shippers to ship in the opposite direction, rather than haul cars back empty. Articles that may be classified under the same class by railroad corporations may still very justly be charged different rates from many causes, the amount to be moved, the amount of shifting necessary, the promptness with which the same can be unloaded, etc.

"The rate of freight necessary to meet competition is important, and naturally brings shippers and railroad corporations closely together. The railroad company, knowing the cost of production of any article and knowing its market value at another given point, consequently knows what rate it must make to secure that business, and which must change the classification and rate for that particular article.

"Second—We are receivers and shippers of dry goods, groceries, hardware, lumber, coal, iron, grain, and, in fact, nearly every commodity known in commerce.

"Third and Fourth—We are not aware of any unjust discrimination in railroad freight classifications or charges, therefore could not suggest any change from the present relation that exists between ourselves and the railroad companies with whom we are doing business.

"We have endeavored to be brief in our answers to your queries, but we trust we have said enough to satisfy you of the injustice and impracticability of the proposed 'act to secure *pro rata* charges,' etc. We do not look upon this from a railroad standpoint, but from our own. We can manufacture 1,000 machines at a less cost per machine than we can manufacture one; we can handle 1,000 tons of freight at a less cost per ton than we can handle one ton. Therefore we suppose a railroad company can do the same, and consequently can give a shipper of 1,000 tons a better rate than a shipper of one car. It is the large merchants, manufacturers and shippers throughout the state who support our railroads and encourage the enterprise of our citizens, and we firmly believe that could a vote be taken from them alone you would find nine-tenths of them opposed to any change of the relations at present existing between themselves and the transportation companies with whom they are doing business. The natural laws of trade and commerce, of supply and demand, and the constitutional rights of private contract all point to the same conclusion."

THE SCRAP HEAP.

Railroad Gardening.

In a description of a recent trip over the Delaware Division of the New York, Lake Erie & Western road, the Port Jervis *Gazette* says: "Within the past two years, Superintendent Murphy has inaugurated a system of planting flower gardens at every depot, and as one stops or whirls past the various stations the eye is relieved by viewing the most beautiful lawns and flower plots. Where once were unsightly, useless and tumble-down sheds or platforms, piles of coal cinders, half-burned ties and scraps of iron, now bloom the choicest varieties of plants and shrubs, surrounded by neat fences. It is surprising, Mr. Murphy stated, at what little expense the improvement has been made. A few neatly-turned posts, connected by condemned boiler flues, two coats of paint, some sod and the price of flower seed comprises the outlay. There is steadily growing up a spirit of rivalry between the station agents as to which of them will have the neatest-kept depot and premises, and by another year this division will bloom with brightness. Deposit at present is the banner flower garden, but Hancock, Hankins and other points are growing to be formidable rivals.

Coal Dust for Filling.

On the Hawley Branch of the Erie several trestles are now being filled in, the chief material used being coal dust or culm brought from Carbondale. It is thought that it will make a very solid road-bed.

A Narrow Escape.

A young gentleman, accompanied by two young ladies while returning from a visit to friends at Cochran, being overtaken by the furious storm of Tuesday night, sought refuge from the drenching rain under a freight car that stood on a side switch. Soon after the rain-bound party had taken shelter, freight train No. 39, backed in, coupled to the car they were under and began pulling out. The gentleman and one lady managed to escape from beneath the car before it had moved far, but the other lady was unable to creep out; but with rare presence of mind she prostrated herself flat on the ground and remained motionless, while five cars rapidly passed over her, without inflicting the slightest injury.—*Indianapolis News.*

Sunday Trains in Massachusetts.

The Massachusetts Railroad Commission has denied the petition of the Housatonic Railroad Company for permission to run Sunday trains. In their report the Commissioners say: "Two statute provisions forbid the running of railroad trains on the Lord's day in Massachusetts. One forbids the doing of 'any manner of labor, business or work, except works of necessity or charity.' The other forbids traveling, with a like exception. In Hamilton *vs.* Boston, 14 Allen, 475, the court, construing the law as to traveling on Sunday, says: 'We are of opinion that a person walking with a friend on Sunday evening less than half a mile, with no apparent purpose of going to or stopping at any place but his own home, much less passing out of the city, and no object of business or pleasure except open air and gentle exercise, is not guilty of traveling or liable to punishment.' To justify the board in permitting the running of a Sunday train under chapter 98, section 15, it is not requisite to show necessity, even in this qualified sense. The 'public necessity and convenience' are the words of the statute. And the intention was to modify the law so that, upon mixed considerations of necessity and convenience, a through Sunday train might be authorized. No law was needed, and no consent of the board is needed to justify the running of a train which is a work of necessity. Two hundred and fifty trains (more or less), as appears from House document No. 93, 1882, are run on Sunday without any application to this board, and without any complaint, so far as we have heard. And we have never had occasion to inquire into the circumstances under which they are run. In deciding the question of convenience, we are to balance against the demand the objections from inconvenience; and in considering the 'things that are not convenient,' as in construing the whole law, we are directed to have 'regard to the due observance of the day.' It is true, as the counsel for the corporation has said, that the state cannot compel anybody to go to meeting. But the state can protect those who desire so to do, and can secure to others the rest for which, as well as for worship, the day has been set apart. It is hard to imagine a place and time where more disturbance, direct or indirect, would be caused than by a train entering Sheffield a little after 11 o'clock in the morning, passing through the rest of the villages on the Housatonic, and reaching Pittsfield a little after noon. The question is, whether a demand has been shown which warrants the Board in authorizing such a Sunday train. The rule forbids these trains. To justify one it must be proved to be an exception. The Legislature, when they amended the law in 1881, did not intend to repeal the Lord's day statutes as to railroads; nor did they intend to delegate the power to repeal or to nullify them. They did not propose to 'put the conscience of the state into commission.' They did see that circumstances might warrant and demand a Sunday train, and they authorized the Board to decide, upon proof of those circumstances, whether such a demand existed."

The Forth Bridge.

Work is now in progress on the bridge over the Firth of Forth, near Edinburgh, Scotland, which will be the largest cantilever bridge in the world. The bridge will be stretched between North and South Queensferry, six miles above Edinburgh. At this point the river is 1¼ miles broad, and half a mile from the north shore is the small island of Inchgarvield. This would make a comparatively easy problem were it not that the depth of water precludes any piers for more than half the distance. On the north the channel is 210 ft. deep, and on the south at least 180 ft. It is out of the question to try to sink caissons so far. Sir Thomas Burch, who built the ill-starred Tay bridge, proposed a suspension. This would have required for the cables two stone towers on the island, each 598 ft. in height, and on either bank of the river one 584 ft. high. They can be better appreciated when it is said that the towers of the Brooklyn bridge rise but 271 ft. above the East River. This idea was speedily given up and the present one adopted. It should be said that, as yet, it is only a plan. Several hundred men are at work preparing the approaches, but the bridge is not constructed.

The plans, however, have been approved by the best English engineers, and there is no reason to apprehend failure.

The principle is a very simple one. An ordinary pier structure runs out a little ways on either bank. On the edge of the deep channel near both banks four solid stone piers are placed in a group, and a similar cluster will stand on the south side of the island. Upon these three supports will rest the entire weight of the bridge. Upon each one will be poised an immense cap of steel, made in the form of an elongated lozenge, with the long axis representing the line of railroad. The middle one will rest on the four island piers, which afford a base of 270 ft. long, and will stretch out on either side 675 ft. The two from the shore piers will come within 350 ft. of meeting the centre one, and to fill the gaps, and resting upon the cages, two steel lattice girder bridges will be hung. The middle cage will exactly balance upon its support, but the other two will have to reach out further over the channel than toward land, and the balance will be made up by weights. In order to give the necessary stiffness to such a span from a single base, the structure has to be stiffened in every manner. The plan of the elongated lozenges gives each one a height above its pier of 30 ft., sloping up from the pier and down from the top to the connecting lattice bridges. These lozenge-shaped affairs are really steel cages, 120 ft. wide at the bottom and only 30 ft. at the top. This inward slope gives the strength of a trestle support, for all the weight falls upon the piers by uprights, and now by the arch principle from the side. The upper sides of the lozenges will be straight, and the lower ones curved, while the track will run along their horizontal axis, 165 ft. above the top of the piers, which will also be the altitude of the two connecting steel girders. This balance, or cantilever principle has never been used in Great Britain on large bridges before. Some idea of the magnitude of the work can be gained by knowing that it will take $8,000,000 and several years' time.

At present the piers on the south side are being put in, a gigantic undertaking in itselff. On the north side they are nearly completed. The bridge will be of steel in every part except the piers.

An Old Swindle Revived.

There has been recently practiced a game of confidence upon various railroads leading out of this city westward, that for boldness, ingenuity and success has no parallel since the famous lard deal of a few years ago, when the anxiety of certain agents for business caused them to sign bills of lading on faith; bills upon which money was collected by the thousands of dollars in the East, but in accordance with which no lard was ever shipped. The present story goes far to show that the devices of sharpers are exhaustless, and that even that shrewdest of all business men, a general freight agent, may be picked up once in a great while. Without going far enough into detail to defeat the ends of justice, for detectives are upon the track of the man Crawford (as under that name operated the chief swindler), the following is the touching tale: Crawford, a neat-appearing, business-like, brisk young man, appeared upon the scene during June. He represented himself to various brokers and others as being in the business of shipping crockery from the Kentucky and other potteries to the far West. He applied to various roads for rates, and, it is believed, got low ones, for he played the fine point of close figuring in behalf of his consignees. In due time casks of crockery appeared at the depots, consigned to San Antonio and California points. On the bills of lading were entered from seven to eight dollars charges in each case, represented as having been the freight paid to bring the crockery in bulk from the potteries. The freight agents were applied to for an advance on account of transportation, and all seeming square, the accommodation seemed a safe one, and was granted. The trip to the distant points of destination for freight trains is not a rapid one, and days passed before the shipments, which aggregate a large amount, were heard from, and then the message was: "No such parties in San Antonio," "No such parties in Denver," "No such parties in Salt Lake," etc. In short the casks were ordered open, and the contents found to be cracked and broken crockery, utterly worthless for any business purpose, and probably obtained for the agreement to move it, if in fact "Crawford" was not paid to take it away from wherever he found it. There are various rumors on the street and in the local railway world as to how much the crockery shipments netted the rascally operator, but it is probably a song as compared with the annoyance of the victimized at having carried the stuff West and over connecting lines, and of having been successfully given "a stiff," as a sell is called by the local fraternity.

There are some points in the affair that make it appear more than a joke to the roads whose fingers were burnt. One rule of the Lake Superior Transit Co. is that railway companies delivering goods to it shall guarantee not only advance, but freight charges. And a smart amount of the crockery is said to have been delivered to the Transit Co. Worse, perhaps, is the case of a general freight agent, who, hearing of the large movement of crockery, solicited the brokers who were supposed to be handling it, and being introduced to "Crawford," was accommodated with 28 carloads, on which he advanced $32 per car—so runs one of the current rumors. Much of the "China" is said to have been bought at Middletown, and one of the consignees, at Des Moines, Ia., is reported dead for 22 years.

Street talk last night put the profits of "Crawford & Co." at $15,000, but this sounds like romance. Certainly not nearly that sum could have been the gross, much less the net proceeds.—*Cincinnati Commercial Gazette, July* 18.

Baltimore & Ohio Employes' Beneficial Association.

In the practical working of this Association, it has been found that one result of attending to the sanitary requirements of the men and distributing among them medicines and remedies is that they accomplish much more work than they would otherwise do. Dr. Barnard, President of the Association, every week sends gallons of medicines to sickly localities and provides the men with the remedies that they need. As a consequence, there are not one-tenth as many cases among the employés as there were last year, and the number of the sick is decreasing every day. In this way both the men and the company are benefited. Another important adjunct to the relief association is its sanitary system, of which Dr. Barnard has charge. It consists of seven sanitary inspectors. They visit every point where the Baltimore & Ohio roads extend, investigate the condition of the houses of the men and the healthfulness of the surroundings. They then make daily reports of these examinations. The attention of the company is called to any defects, and arrangements are made to remedy them. A recent instance is found in Garrett, Ind., a very unhealthy town, where the shops of the Chicago Division are located. Here the marshes were drained, a sewerage system established, wells of pure water dug and other sanitary improvements effected, all at the expense of the Baltimore & Ohio Railroad.

The relief fund has distributed an average of $200,000 a year. In addition the Association aims to secure homesteads for the members. Fifty have already been furnished houses and 23 houses were recently purchased. The general fund pays for these and an employé acquires one by the payment of 1½ per cent. of its value monthly during seven years or the cash price, with about 3½ per cent. yearly interest added. A circulating library is now being organized, the books to be distributed free by the company on receipt at the library of a slip containing the necessary directions.

A most important arrangement will soon be perfected by the Association, the erection of a sanitarium for the sick, aged and disabled employés of the company. The institution will be located at some favorable point on the plateau between Altamont and Cranberry, not a very great distance from the Deer Park and Oakland hotels. In the present system special arrangements are had with hospitals in Chicago, Columbus, Pittsburgh, Wheeling, Washington and Baltimore, so that in case of disability or accident the person is sent to the infirmary of one of these cities. A great want has been felt, however, for an institution which should occupy a central, healthy position and be managed entirely by the company, and that it would not only be more economical, but more satisfactory as well. Dr. Barnard is now at work completing the necessary details preparatory to the founding of the sanitarium. A large hotel will be erected at the place selected, as well as several small convenient cottages. The employés unable to work who come to the institution will be granted a small pension by the Relief Association, sufficient to cover all their expenses. The only charges will be just what is necessary to pay for the food and janitoring. There will be no cost for the use of the furniture. The cottages are designed for those who desire to bring their families with them. The same rates will be maintained there as at the hotel. The sanitarium will also be a pleasant inexpensive summer resort for the railroad men. A complete hospital will be attached, and physicians will be in constant attendance to respond to the calls of the sick. The location of the institution could scarcely be more advantageous, inasmuch as the site occupies a central position on the line of the road, while its healthfulness is proverbial. It is believed that this system when finished will be the most complete railroad hospital service in the world.

The Richmond & Danville at the Denver Exposition.

The management of the Richmond & Danville Co. intends to make an exhibit at the Denver Exposition, which opens Aug. 1, of the varied resources of the country traversed by its lines. A circular from C. C. McPhail, Chief of the company's bureau of mines and manufactures, has been addressed to parties along the lines of the Richmond & Danville which says, among other things:

"Northeastern Georgia could send a superb exhibit of minerals and woods, if the parties interested would take hold of the matter at once.

"The Richmond & Danville made a splendid exhibit at Boston last year, and will doubtless do as well or better at Denver.

"The question to be determined, and that quickly, is how for will the class to be most benefited give its aid and show its appreciation by furnishing the material for such an exhibit as will do credit to the mineral resources of the country to be illustrated and produce the impression which can and ought to be made? Well-selected specimens of copper, gold, silver, lead and zinc ores are particularly wanted, and, in addition, rich specimens of free gold ores, nuggets, placer washings, native silver, carbonates, chlorides to embellish the display and show all the richness of precious metal is not confined alone to western fields."

Taking it Easy.

An exchange says that the conductor, fireman and two brakemen, of an Illinois Midland freight train, deserted the train to indulge in a swim while it was side-tracked near Arcola, Ill., recently, waiting for a passenger train which was not quite due. When the passenger arrived Train-Master Grady alighted to take passage back to Decatur on the freight. He waited 20 minutes on the deserting crew, and then signaled the engineer to pull out. A fireman and brakeman were picked up along the road, and now the swimming quartet are out of a job.

Drinker's Tunneling.

An exhaustive article in the London *Quarterly Review*, April, 1883, covering the recent literature on explosive compounds, says: "The large folio of Mr. Henry S. Drinker, of Philadelphia, upon 'Tunneling,' (so spelled in the American fashion) is indeed a marvel of elaboration, research and industry. With the exception of the author of the leading German work on the same subject, Rziha's 'Lehrbuch der Gesammten Tunnel baukunst,' which is now a little antiquated, we are acquainted with no engineer, no chemist, no man of science, who has entered so fully and agreeably as Mr. Drinker into the details of practical tunneling, into the constituents and properties of modern explosive compounds, and the principles of blasting—not to mention that a very interesting 'History of Tunneling from the time of Rameses II. to the present time,' does the greatest credit to its laborious compiler. It is quite evident, even without reading his preface, that Mr. Drinker must have given many years to his *magnum opus*, the 1,031 closely printed pages of which are profusely illustrated."

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Long Island	73	Woodstock	100
Maine Central	71	Worcester & Nashua	40
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Pennsylvania Company.

This company, which operates or controls all the Pennsylvania lines west of Pittsburgh & Erie, operates directly the following lines under lease, or by ownership of the stock:

	Miles.
Pittsburgh, Fort Wayne & Chicago	468.3
New Castle & Beaver Valley	14.9
Lawrence R. R.	22.0
Massillon & Cleveland	12.2
Erie & Pittsburgh	100.0
Northwestern Ohio, owned	85.7
Meadville R. R.	20.5
Alliance, Niles & Ashtabula, owned	24.9
Ashtabula & Pittsburgh, owned	62.6
Cleveland & Pittsburgh	199.9
Jeffersonville, Madison & Indianapolis and branches	204.1
Indianapolis & Vincennes	116.6
Total worked directly	1,331.7

The report is for the year ending Dec. 31 last.

The Pittsburgh, Cincinnati & St. Louis and its leased lines are controlled through ownership of stock; a separate report is made of the operations of that company. Other lines, not directly worked, are controlled by stock ownership; these lines are enumerated elsewhere.

The only addition to the lines worked directly during the year, was the Alliance, Niles & Ashtabula, from Niles, O., to Alliance Junction, 24.9 miles, built by this company.

The equipment consists of 507 locomotives; 388 passenger train cars, 22,295 freight cars and 623 service cars.

The general account is as follows:

Liabilities.

Stock	$20,000,000.00
Bonds	13,200,000.00
Due lessor companies for supplies	831,831.58
Due Penna. R. R. Co., not inc. current balances	410,772.84
Due to other companies	735,610.82
Due for current working expenses	1,572,045.81
Miscellaneous liabilities	378,624.49
Interest unpaid on registered bonds	1,935.00
" 4½ per cent. bonds	227,655.00
Reserve fund, leased roads	1,920,541.68
Balance of profit and loss	5,160,484.69
Total	$44,439,501.91

Assets.

Securities	$19,639,781.54
Bills receivable	10,189,953.15
Equipment	814,388.02
Real estate	812,364.14
Union Line property	2,606,304.03
Due for betterments to leased roads	1,464,894.91
Due by other companies	1,867,582.10
Due by station agents	1,514,159.96
Stock of supplies	1,262,132.35
Miscellaneous assets	574,317.26
Cash	731,194.29
Advanced to pay coupons, Grand Rap. & Ind. Co.	137,502.02
Purchase of liens on real estate for C., C. & I. C.	48,485.87
Sinking fund for registered bonds	515,000.00
Philadelphia Trust, Safe Deposit & Insurance Co., trustee	10,245.59
Sinking funds for leased roads	1,920,541.68
Sinking fund, 4½ per cent. bonds	103,000.00
N. Y. agent, to meet interest	227,655.00
Total	$44,439,501.91

The funded debt consists of $10,000,000 first-mortgage 4½ per cent. bonds, and $3,200,000 registered 6 per cent. bonds, secured by pledge of Pittsburgh, Fort Wayne & Chicago stock.

The item of sinking funds for leased roads includes $1,223,175 for the Pittsburgh, Fort Wayne & Chicago, and $697,366.68 for the Cleveland & Pittsburgh.

The amount due for betterments of leased roads is to be repaid by stocks or bonds of those roads, under the terms of the leases.

The item of interest unpaid on 4½ per cent. bonds, includes the coupons due Jan. 1, 1883, the day following the close of the accounts.

The income statement is as follows:

	1882.	1881.	Inc. or Dec.
Net earnings Union Line Bureau	$252,075	$656,143	D. $404,068
Rent, Monongahela Extension	50,000	39,583	I. 10,417
Rent, real estate	51,730	42,909	I. 8,821
" equipment	41,163	23,962	I. 17,201
Profits from working leased roads	1,194,651	2,262,562	D. 347,911
Interest and dividends received	681,208	1,049,350	D. 368,142
Total	$2,990,827	$4,074,509	D. 1,083,682
Expenses Propriet'y Dep't.	81,637	71,908	I. 9,729
Interest on registered bonds	170,090	175,795	D. 5,105
" 4½ p. c. bonds	450,000	287,045	I. 162,955
Dividends	800,000	1,000,000	D. 200,000
Loss from working leased roads	420,617	453,719	D. 33,102
Advances to controlled roads		219,860	D. 219,860
Total	$1,922,944	$2,208,327	D. $285,383
Balance, surplus	$1,067,883	$1,866,182	D. $798,299

The dividends paid last year were 4 per cent. on $20,000,000 stock, against 5 per cent. on the same amount in 1881.

The losses on leased lines last year were $207,651 on the Erie & Pittsburgh; $189,348 on the Indianapolis & Vincennes, and $23,618 on the Massillon & Cleveland. The profits on leased lines reported were $16,428 on the Lawrence road; $45,835 on the New Castle & Beaver Valley; $474,952 on the Cleveland & Pittsburgh, and $1,377,437 on the Pittsburgh, Fort Wayne & Chicago. Profits received from the lines owned come under the head of interest and dividends on investments.

The profit and loss account was as follows:

Balance, Dec. 31, 1881	$4,230,138.78
Balance of income account for 1882	1,067,883.45
Settlement of old accounts	59,737.46
Total	$5,357,759.69
Carried to reserve fund for sinking funds of new roads	197,275.00
Balance, Dec. 31, 1882	$5,160,484.69

The earnings, expenses, etc., of the various lines worked are given in detail elsewhere.

TRAFFIC OF ALL THE LINES.

The passenger traffic of all the lines worked directly was as follows:

	Passengers carried.	Passenger miles.	Per pass.-mile. Gross. cts.	Net. cts.
Pitts., Ft. W. & C....	3,103,406	140,057,682	2.02	0.88
1881.....	2,863,120	130,470,469	1.89	0.88
New Castle & B.V....	149,842	1,489,347	3.10	1.13
1881.....	130,243	1,319,707	3.20	1.20
Lawrence.....	53 969	645,052	2.80	*1.33
1881.....	41,936	554,042	2.72	*1.54
Massillon & Cleve....	859	6,688	3.05	....
1881.....	4,552	37,444	2.87	*7.02
Erie & Pitts.....	196,711	3,793,195	3.10	0.82
1881.....	166,741	3,310,030	3.16	0.20
Northwestern O.....	111,268	2,567,120	2.60	0.13
1881.....	108,112	2,568,723	2.58	0.01
Meadville.....	49,296	656,073	2.42	0.18
1881.....	5,908	86,304	....	....
All., Niles & Ash....	7,487	131.221	2.85	0.70
Ashtab. & Pitts.....	87,399	1,198,080	2.75	*0.70
1881.....	79,542	1,121,208	2.71	*1.24
Cleve. & Pitts.....	1,066,759	23,234.059	2.49	0.88
1881.....	906,706	22,265,486	2.48	0.91
Jeff., Mad. & Ind.....	1,039,645	17,114.741	2.34	0.21
1881.....	928,086	15,926,647	2.54	0.06
Ind. & Vincennes....	302,944	4,436,663	2.74	*0.86
1881.....	249,797	3,823,084	3.03	*0.56
Total, all lines	6,169,585	195,329,921	.....	.....
1881.....	5,484,743	181,453,204	.....	.....

*Loss.

The total increase in passengers carried was 684,842, or 12.5 per cent.; in passenger-mileage, 13,876,717, or 7.7 per cent. There was a marked and general increase in travel on all the lines, greater proportionately in local than in through travel. There was generally a slight improvement in rates, accompanied on most of the lines by an increase in expenses. Three of the lines show a loss on their passenger business last year.

In these tables the operations of the Alliance, Niles & Ashtabula road are for four months and 24 days only; the Meadville road is for the full year in 1882, but for three months only in 1881.

The freight traffic of all the lines was as follows:

	Tons moved.	Ton-miles.	Per ton-mile. Gross. cts.	net. cts.
Pitts., Ft. W. & Chi...	4,837,236	991,907,501	0.75	0.28
1881.....	4,753,220	1,044,447,161	0.75	0.32
New Castle & B. V....	1,506,624	17,957,231	1.74	0.94
1881.....	1,341,677	16,177,642	1.75	1.25
Lawrence.....	984.350	14,915,507	1.37	0.75
1881.....	785,773	11,672,655	1.49	0.76
Massillon & Cleve....	18.194	60,949	8.97	*5.86
1881.....	19.087	67,411	9.03	1.66
Erie & Pitts	820,776	39,532,178	1.14	0.33
1881.....	871,424	43,549,551	1.16	0.29
Northwestern O.	299,511	20,431,017	0.93	0.04
1881.....	265,478	18,751.250	0.94	0.00
Meadville.....	19,168	285,112	2.94	0.54
1881.....	2,433	41,876	....	....
All., Niles & Ash.....	54,051	1,437,146	0.85	0.60
Ashtab. & Pitts.....	720,837	28,287,305	1.01	0.34
1881.....	545,588	23,841,582	0.16	0.54
Cleve. & Pitts.....	2,538,759	215,901,745	1.11	0.53
1881.....	2,482,592	211,190,606	1.17	0.58
Jeff., Mad. & Ind	2,571,826	75,795,194	1.41	0.42
1881.....	2,405,705	74,226,601	1.28	0.34
Ind. & Vincennes.....	170,997	12,013,880	1.67	0.31
1881.....	189,154	14,628.537	1.40	0.09
Total, all lines..	14,542,329	1,418,524,749	....	....
1881.....	13,662,141	1,458,504,872	....	....

*Loss.

The general result was an increase of 880,188, or 6.4 per cent., in tons carried, with a decrease of 40,070,123, or 2.1 per cent., in ton-miles. There was a decrease in through freight and an increase in local business. On the Fort Wayne road the rate per ton-mile was unchanged, but on nearly all the others there was a slight decrease, and on all but four of the lines there was a considerable decrease in the net receipts per ton-mile.

Some statistics of train movement are as follows:

	Train-miles.	Car miles. Passenger.	Car miles. Freight.	Train-load. Pass.	Train-load. Tons.
Pitts., Ft. W. & Chi.....	10,007,808	12,415,334	119,273,984	68	182
1881.....	10,252,914	11,845,905	119,956,058	69	172
N. Castle & B. V.	242,269	138,502	1,961,635	38	172
1881.....	210,095	129,090	1,837,352	34	178
Laurence.....	160,402	98,935	1,429,094	18	233
1881.....	138,416	77,880	1,133,702	18	240
Massillon & Clev.	7,809	.....	20,808	..	8
1881.....	14,662	18,712	28,594	6	9
Erie & Pitts... .	573,397	520,505	4,701,870	26	150
1881.....	608,501	464,114	5,855,813	23	144
Northwestern O.	423,153	336,945	2,471.178	25	146
1881.....	409,901	318,423	2,241,617	24	143
Meadville	42,315	60,647	91,749	23	22
1881.....	13,330	10,308	16,192	14	18
Alliance, Niles & Ash	14,783	19,897	172,050	19	184
Ashta. & Pitts..	312,531	131,988	3,048,250	21	218
1881	206,906	155,695	2,217,740	20	223
Cleve. & Pitts.. .	2,384,314	2,450,376	33,816,900	42	175
1881.....	2,6 0,480	2,196,841	25,164,355	43	161
Jeff., Mad. & Ind.	1,365,679	1,542,582	10,126,035	37	195
1881..	1,344,235	1,466,027	10,198,378	35	188
Ind. & Vin	343,505	509,755	2,166,397	25	80
1881.....	364,822	477,508	2,796,438	22	83

The Meadville road figures are for only three months in 1881. The Alliance, Niles & Ashtabula figures are only from the opening of the road on Aug. 7 to Dec. 31, a period of 4 months and 24 days.

The general result was a decrease on the principal lines in train movement, and a decrease in freight car movement, while there was an increase in that of passenger cars.

The operations of the several lines worked in detail were as follows:

PITTSBURGH, FORT WAYNE & CHICAGO.

This road, which may be called the backbone of the whole system, includes the main line from Pittsburgh to Chicago, 468.3 miles. Its earnings were as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Earnings	$10 894,870	$10,741,490	I. $153,380	1.4
Expenses.	6,272,394	5,858,484	I. 413,910	7.1
Balance.	$4,622,476	$4,883,006	D. $260,530	5.3
Cleve.& Pitts joint earnings.....	316,275	279,580	I. 36,695	12.4
Net earnings.....	$4,306,201	$4,603,426	D. $297,225	6.5
Rental.....	2,928,764	2,887,752	I. 41,012	1.4
Profit.....	$1,377,437	$1,715,674	D. $338,237	19.7

There was expended for betterments $462,080, chiefly for second track, extension of yards at Allegheny and Fort Wayne and new locomotives. There was received from the lessor company on this account $701,100, leaving a balance of $1,280,874 due. There were used in renewals 2,186 tons of steel rails and 306,154 new ties.

For the first time the west-bound through freight exceeded the east-bound. The local tonnage was 65 per cent. of the whole freight traffic.

Payments to the sinking funds for the year were $104,100. At the close of the year the trustees held $2,925,000 in bonds and $354,089 in cash.

NEW CASTLE & BEAVER VALLEY.

The earnings of this road, 14.9 miles, were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Earnings.....	$365,493	$331,528	I. $33,965	10.2
Expenses.....	173,461	116,741	I. 56,720	48.6
Net earnings.....	$192,032	$214,787	D. $22,755	10.6
Rental	146,197	132,611	I. 13,586	10.2
Profit.....	$45,835	$82,176	D. $36,341	44.2

The increase in expenses was due to work done on the reduction of grades, and the building of a new iron bridge over the Mahoning River, in place of an old wooden one.

LAWRENCE.

The earnings of this line, 22 miles, were:

	1882.	1881.	Inc. or Dec.	P.c.
Earnings.....	$226,910	$193,001	I. $33,909	17.6
Expenses.....	119,718	107,876	I. 11,842	11.0
Net earnings.....	$107,192	$85,125	I. $22,067	25.9
Rental.....	90,764	77,200	I. 13,564	17.6
Profit	$16,428	$7,925	I. $8,503	107.3

This road is now all laid with steel. The rental is 40 per cent. of the gross earnings.

MASSILLON & CLEVELAND.

The earnings of this line, 12.2 miles, were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Earnings.....	$5,551	$7,658	D. $2,107	27.5
Expenses	9,169	8,669	I. 500	5.8
Deficit.....	$3,618	$1,011	I. $2,607	260.0
Rental	20,000	20,000	.....	.....
Loss.....	$23,618	$21,011	I. $2,607	12.4

The business of this line, already very light, continues to decrease.

ERIE & PITTSBURGH.

This road has 100 miles, including 15.5 miles, the use of which is leased from the Lake Shore & Michigan Southern; its earnings were as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Earnings.....$	604,145	$651,484	D. $47,339	7.3
Expenses.	407,763	478,112	D. 70,349	14.7
Net earnings.$	196,382	$173,372	I. $23,010	13.3
Rental.....	404,033	406,894	D. 2,861	0.7
Loss.....$	207,651	$233,522	D. $25,871	11.1

There were 1,013 tons of steel rails and 21,252 new ties used. The extension of the docks at Erie was completed. The loss in business was chiefly in coal.

NORTHWESTERN OHIO.

The earnings of this line, 85.7 miles, were:

	1882.	1881.	Inc. or Dec.	P. c.
Earnings.....	$297,031	$290,285	I. $6,746	2.3
Expenses...	245,582	243,127	I. 2,455	1.0
Net earnings.....	$51,449	$47,158	I. 4,291	9.5
Rentals, etc.....	49,955	52,589	D. 2,634	5.1
Surplus or deficit..S.	$1,494	D. $5,431	.....	....

Heavy renewals of bridges were made necessary by damage done by freshets.

MEADVILLE.

This line of 20.5 miles makes the following statement:

Earnings...	$26,876
Expenses.....	25,788
Net earnings.....	$1,088
Hire of equipment.....	2,514
Loss.....	$1,426

This road was worked only three months in 1881. It is worked by this company at cost.

ALLIANCE, MILES & ASHTABULA.

This road is 24 9 miles long, and its trains use 2.6 miles of the Pittsburgh, Fort Wayne & Chicago track. It was opened Aug. 7, 1882, and its earnings for the balance of the year were:

Earnings....	$16,165
Expenses.....	6,372
Net earnings....	$9,793
Rent and hire of equipment.....	$3,397
Surplus...	$6,396

This road is owned by the Pennsylvania Company.

ASHTABULA & PITTSBURGH.

The earnings of this line, 62.6 miles, were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Earnings.. .. ..$	343,186	$317,012	I. $26,174	8.3
Expenses.....	231,888	193,124	I. 38,764	20.1
Net earnings.....$	111,298	$123,888	D. $12,590	10.2
Hire of equipment....	19,684	9,634	I. 10,050	104.3
Surplus.....	$91,614	$114,254	D.$22,640	19.8

There were 438 tons of steel rails laid. Terminal improvements at Ashtabula are in progress. This road is owned by the Pennsylvania Company.

CLEVELAND & PITTSBURGH.

This road includes 199.9 miles, and its trains use 25.5 miles of the Pittsburgh, Fort Wayne & Chicago track. Its earnings were as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Earnings.....$	3,067,469	$3,112,021	D. $44,552	1.4
Expenses....	1,618,895	1.604,889	I. 14,005	0.9
Net earnings.....$	1,448,574	$1,507,132	D. $58,558	3 9
P., Ft. W. & Chi., joint earnings.....	285,893	205,890	I. 80,003	38.9
Total net..... ...$	1,734,467	$1,713,022	I. $21,445	1.3
Rental.....	1,259,515	1,256,236	I. 3,279	0.3
Profit	$474,952	$456,786	I. $18,166	4.0

The amount expended for betterments was $199,179. There was received from the company on this account $237,000, leaving $184,021 due. Payments to the sinking fund were $93,175; the trustees held $620,000 bonds and $182,306 cash.

There were used in renewals 1,697 tons steel rails and 82,735 ties. The betterments consisted of iron bridges and improvements at Cleveland.

JEFFERSONVILLE, MADISON & INDIANAPOLIS.

The earnings of this road, 204.1 miles in all, were:

	1882.	1881.	Inc. or Dec.	P. c.
Earnings.....$	1,545,199	$1,462,802	I. $82,397	5.6
Expenses..	1,188,391	1,097,759	I. 90,632	8.3
Net earnings.....	$356,808	$365,043	D. $8,235	2.3
Half loss on Cambridge Extension.....	1,826	3,213	D. 1,387	43.2
Net balance.....	$354,982	$361,830	D. $6,848	1.9

There were used in renewals 1,700 tons of steel rails, 604 tons of iron rails and 192,131 new ties. There was paid into the sinking fund $100,000; the trustees now hold $288,000 bonds and $57,251 cash.

INDIANAPOLIS & VINCENNES.

The earnings of this road, 116.6 miles, were as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Earnings..	$342.983	$339,739	I. $3,244	0.9
Expenses.....	323,132	329,478	D. 6,346	1.9
Net earnings.....	$19,851	$10,261	I. $9,590	93.5
Interest, etc.	209,198	209,446	D. 248	0.1
Loss.....	$189,347	$199,185	D. $9,838	4.9

There were 650 tons of iron rails and 52,422 ties used in renewals. There was a decrease in tonnage, owing to the loss of the Wabash business from Cairo.

UNION LINE BUREAU.

The earnings and expenses of the Union Line Bureau were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Commissions....	.....	$633,379	D. $633,379	100.0
Mileage.....	$475,835	566,406	D. 90,571	16.0
Miscellaneous...	3,121	2,988	I. 133	4.5
Total	$478,956	$1,202,773	D. $723,817	60.2
Expenses..	226,881	546,630	D. 319,749	58.5
Net earnings.....	$252,075	$656,143	D. $404,068	61.6

The change in earnings and expenses is chiefly due to a change in accounts, the commissions formerly allowed this bureau having been abolished and its traffic placed on the same basis as other traffic. Expenses are now confined to maintenance of cars. The tonnage was 2,121,214 tons last year, against 2,277,589 tons in 1881; the rate per ton mile 0.68 cent, against 0.67 cent in 1881.

CONTROLLED ROADS.

The following statement shows briefly the the operations of other roads in which the Pennsylvania Company owns a controlling interest, but which it does not work directly:

	Earnings.	Net earnings.	Charges.	Surplus or deficit.
Grand Rapids & Ind ...$	2,260,291	$582,054	$515,979	S. $66,075
1881.....	1,940,570	562,890	499,785	S. 63,105
Cin., Rich. & Ft. Wayne $	435,764	122,092	167,573	D. 45,481
1881.....	407,303	132,018	161,337	D. 29,319
Allegan & S. E..... ...	12,617	*1,197	.....	D. 1,197
1881.....	12,406	2,811	.....	S. 2,811
Traverse City.....	34,539	6,212	17,150	D. 10,936
1881.....	28,303	2,196	17,150	D. 14,954
Bay View, Little Traverse & Mackinaw.....	4,932	*3,307	.....	D. 3,307
Gr. Rap., Ind. & Mac....	16,955	*3,349	10,240	D. 13,589
East St. L. & Carondelet	117,412	22,886	14,000	S. 8,886
1881.....	119,584	21,580	14,110	S. 7,470

* Deficit.

The Southwestern system is operated by the Pittsburgh Cincinnati & St. Louis Co., in which this company holds a controlling interest. The report of the company is made separately, and was published some time ago.

The joint interest of the company and the Pennsylvania Railroad Co. in the Indianapolis & St. Louis and its leased St. Louis, Alton & Terre Haute road has been sold to the Cleveland, Columbus, Cincinnati & Indianapolis Co. for $300,000 cash and $500,000 guaranteed second-mortgage bonds, and those roads are no longer included in the statements given.

The Bay View, Little Traverse & Mackinaw was opened Feb. 1, 1882; the Grand Rapids, Indiana & Mackinaw for freight in May, and for passengers in June.

PERSONAL INJURIES.

A statement in the Manager's report gives the injuries to persons on all the lines worked directly as follows: Passengers, 1 killed and 17 injured; employés, 37 killed and 309 injured; other persons, 74 killed and 111 injured; a total of 112 persons killed and 437 injured.

This statement shows that there was 1 passenger killed to 195,329,921 passenger-miles or 6,169,585 passengers carried, and one passenger injured to 11,489,995 passenger-miles or to 362,917 passengers carried.

There was one employé killed to each 429,134 train-miles, and 1 employé injured to each 51,385 train-miles.

A comparison with the year 1881 is as follows:

	Passengers. 1882.	Passengers. 1881.	Employés. 1882.	Employés. 1881.	Others. 1882.	Others. 1881.
Killed.....	1	3	37	48	74	59
Injured..... 17		6	309	198	111	67
Total.... ... .18		9	346	246	185	126

The total number killed last year was 112, an increase of 2, or 1.8 per cent., over 1881. The total number of injured was 437, an increase of 166, or 61.4 per cent., the total number of injuries to persons being 549, an increase of 168, or 44.2 per cent.

The other persons killed and injured were chiefly persons run over at highway crossings or while walking on the track.

GENERAL REMARKS.

President Roberts' report says: "It will be noted from the general account that your company was able, after providing for all its obligations, to pay a dividend of 4 per cent. upon its full paid capital stock of $20,000,000, and to carry to the credit of profit and loss $1,067,883.

"Under the terms of the respective sinking funds, there were redeemed of your bonds, secured by the stock of the Pittsburgh, Fort Wayne & Chicago Co. as collateral, $515,000 at the end of 1882, leaving the amount outstanding $2,685,000, and of the $10,000,000 of 4½ per cent. bonds $103,000, leaving $9,897,000 outstanding.

"It will be noted from the tables attached that the number of tons moved upon the lines operated by your company increased 6.44 per cent., while the ton mileage decreased 2.08 per cent. The number of passengers carried increased 12 50 per cent., and the mileage 7.65 per cent.

"The aggregate earnings of all lines showed an increase over 1881, the loss in freight earnings being more than offset by the increased revenue from passenger traffic; but the net earnings show a decrease. A lower rate per ton-mile prevailed throughout the year, and while the passenger rates show an improvement, that traffic was handled at a greater cost.

"There was a general increase in the tonnage per train, due to greater efficiency of motive power. The policy of substituting heavier engines has been steadily pursued, and the condition of all the equipment is improving. There were 1,467 freight cars built to fill vacant numbers, as against 1,039 in 1881. At the Allegheny shops 12 class E engines, 50 passenger coaches and 667 freight cars were built; at Fort Wayne 15 class E engines and 902 freight cars, and at Cleveland one passenger coach and 78 freight cars.

"There were laid on the lines directly operated by your company 6,663 tons of steel rails.

"The new line between Niles and Ashtabula was opened for traffic Aug. 7, and gives promise of becoming a valuable auxiliary to your system."

RAILROAD GAZETTE

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THE CHEAPEST RAILROAD WORKING IN THE WORLD.

The East Indian Railway, the greatest railroad of British India, compares more nearly with our chief lines in its average freight rates than any European road, and at the same time has lower average passenger fares than European roads, which have generally, out of England, much lower fares than ours, taking all classes together. The East Indian has 1,506¾ miles of road, 469¼ of which have a double track. Its passenger traffic in 1882 amounted to no less than 882,445,835 passenger-miles, which is equal to 803½ passengers each way daily over its entire mileage, against 592 on the New York Central, which with one third less mileage had little more than half the passenger traffic of the East Indian; and there is no other railroad system in the United States that has so heavy a passenger traffic as the New York Central. But the dense population which furnishes this heavy travel in India is mostly very poor, and must have rates to suit their circumstances; and in fact the average passenger rates are, so far as we know, the lowest in the world, being in 1882 only 0.64 cent. per mile, which would be at the rate of 57½ cents for a ticket from New York to Philadelphia, 92 cents from New York to Albany, $6.14 from New York to Chicago, $21 from New York to San Francisco, and $11.95 from Omaha to San Francisco—rates which would not pay a fraction of the expenses in this country, where there are but about 475 inhabitants per mile of railroad, against more than 20,000 in India. To give the average mile of railroad as much travel as the Indian roads get, the average American must travel as much as 42 average Hindoos. This very low average rate is almost wholly due to the predominance of the lowest class of passengers in India. No less than 92 per cent. of its passengers rode in what is called the third class, which is really a fourth class, as between it and the second class is an "intermediate class," to which 5.8 per cent. of its passengers belonged, leaving but 2.2 per cent. in the first and second classes, and less than ¼ per cent. in the first class. Out of an average of 24,068 passengers that use its cars daily, only 116 ride in the first-class cars, and the amount received from carrying first and second-class passengers therefore had but little effect on the average rate. The regular third-class rate (which was reduced one-fifth during 1882), is 0.573 cent per mile; for a part of the year it was 0.7874. As the average rate for all classes was but 0.64 cent for the year, we can judge how little effect the other classes had on it.

The East Indian freight traffic does not make so imposing a showing, by any means, but it is very large, nevertheless, amounting to 1,125,171,840 ton-miles, which is less than half the New York Central's freight traffic on two-thirds of the mileage, and equivalent to 1,017½ tons carried each way daily over the entire mileage, against 3,280 on the New York Central. The number of American roads whose freight traffic exceeds that of the East Indian is not very great, however.

The average rate per ton per mile on the East Indian would be called high on our trunk lines or their immediate connections, but is equaled on many of the roads from Chicago westward, and exceeded by many others, including nearly all Southern and most New England roads. It was 1.261 cents, which is exactly the same as the average on the Chicago & Alton last year. Compare it with the following American rates in 1882: Canada Southern, 0.552 cent.; Philadelphia & Erie, 0.615; New York, Pennsylvania & Ohio, 0.622; Lake Shore, 0.628; Columbus, Chicago & Indiana Central, 0.660: Pittsburgh, Cincinnati & St. Louis, 0.700; Cleveland Columbus, Cincinnati & Indianapolis, 0.706; New York Central, 0.738; Erie, 0.749; Michigan Central, 0.772; Pennsylvania, 0.817; Wabash, 0.951; Rock Island, 1.170; Illinois Central, 1.420; Milwaukee & St. Paul, 1.480 cents.

If the New York Central had obtained the East Indian freight rate last year, its freight earnings would have been $30,197,000 instead of $17,672,000, and the difference (all net) would have been equal to a dividend of 14 per cent.; but with the East Indian passenger rate its profits on passengers would have been reduced just about $5,000,000, and with the East Indian rates on both branches of traffic its profits would have been larger than they were by $7,525,000, and would have amounted to $14.82 instead of $6.42 per share of stock. The Lake Shore's earnings at the East Indian rates compare as follows with its actual earnings:

	Actual.	By East Ind. rates.
From freight	$12,022,577	$24,139.797
From passengers	4,897.185	1,453,540
Freight and passengers	$16,919,762	$25,593,337

That is, the Lake Shore would have made $12,000,000 more from freight and $3,440,000 less from passengers if its traffic had been carried at the rates of the East Indian Railway, and on the whole it would have had $8,674,000 more profit, and could have paid a dividend of $25 per share instead of $8, and had something to spare.

But the East Indian Company makes a very favorable showing as to the *expense* per ton per mile, as well as per passenger mile. Its receipts are not mostly swallowed by the working expenses, but the latter in 1882 were only 37 per cent. (In 1881 they were only 31⅛ per cent.) Assuming that the proportion of expenses to receipts was the same for passengers and freight, the cost per ton per mile to the company was 0.467 cent and per passenger per mile the incredibly small amount of 0.237 cent! If the latter is too small, we must remember that the former is too large. Per passenger-mile the cost in this country is five or six times as great; per ton-mile very few roads go below it. We cite the following (cost per ton per mile in 1882): Lake Shore, 0.413 cent; Canada Southern, 0.420; Philadelphia & Erie, 0.430; New York, Pennsylvania & Ohio, 0.455; Pennsylvania, 0.473; Pittsburgh, Cincinnati & St. Louis, 0.510; Cleveland, Columbus, Cincinnati & Indianapolis, 0.513; Erie, 0.529; Michigan Central, 0.558; New York Central, 0.600. Thus only four roads can we find with a lower cost per ton per mile than the East Indian, which even goes a little below the Pennsylvania Railroad Division of the Pennsylvania Railroad Company. Taking passengers and freight together the East Indian is probably more cheaply worked than any other railroad in the world. The profit that it makes on freight is enormously greater than is made on any of our roads with heavy traffic, amounting to 0.794 cent per ton per mile. Many of our railroads have to put up with a third or a quarter of that. Witness the following profits per ton per mile of some leading roads last year: Columbus, Chicago & Indiana Central, 0.05 cent; Canada Southern, 0.132; New York Central, 0.138; New York, Pennsylvania & Ohio, 0.167; Philadelphia & Erie, 0.185; Pittsburgh, Cincinnati & St. Louis, 0.190; Vandalia, 0.190; Cleveland, Columbus, Cincinnati & Indianapolis, 0.193; Michigan Central, 0.214; Lake Shore, 0.215: Wabash, 0.257; Erie, 0.276; Northern Central, 0.291; Boston & Albany, 0.300. None of these have half the East Indian's profit per ton per mile; some of the smaller roads doubtless have, and perhaps a few of the larger Western roads, none of which have so dense a traffic. In a list which includes several of the latter, the Illinois Central approaches the East Indian most nearly, with a profit of 0.781 cent per ton per mile.

The East Indian report mentions a reduction in its rate on wheat, made at the instance of the Indian government (which owns but does not work this road) in order to enable Indian wheat to compete with American in the European market. The reduction was not made until June 1 this year. From Delhi to Howrah, 954 miles (just about equal to the distance from Chicago to New York), it is equivalent to 33¼ cents per 100 lbs. (0.672 cents per ton per mile), against our summer rate of 25 cents and winter rate of 30, a closer approximation than there is elsewhere in the world. From Delhi to Bombay, 889 miles, the rate was also reduced 18¼ per cent. to 36 cents per 100 lbs., which is about 0.83 cent per ton per mile. With their extremely low working expenses it would seem that the Indian roads ought to be able to make rates on grain even lower than those of our roads, the more so because they do not depend to so great an extent on their export grain freights. That is, what they get from this freight is usually so much additional profit, and if it costs the East Indian even as much as the average ton of freight (and with the long haul it ought not to cost nearly as much), it still leaves it a profit of 0.205 cent per ton per mile, which is as large a profit as some of our roads get on all their freight. If the cost of production in India is no greater than has been represented, then there is no doubt that with the cheap transportation to the sea which its railroads can well afford, no country can supply Europe so cheaply. But, as we have said, India usually needs nearly all the grain it can raise. It is densely peopled, and it is not to be supposed that much productive land has remained uncultivated in a country where the people starve every few years. It is said, however, that in the Indus Valley a large amount of land may be made available for wheat by irrigating works, which the government is prosecuting. Last year the East Indian road carried much less grain than usual (its receipts from grain freights being $800,000 less in the last half of 1882 than in 1881), not because of light crops on its own lines, but because of heavy ones in the Northwest provinces of India, which provided for themselves what the year before had been imported from other parts of India.

The low working expenses in India are probably chiefly due to the low wages paid. More and more the railroads have been substituting native for European employés, and natives now occupy many responsible positions, even as enginemen and station-masters, and nearly all the lower places. Their pay is very small. Materials and supplies must cost more than in Europe, but probably less than in this country, with the exception of timber and ties. Not many years ago the Indian railroads imported most of their fuel, and in those days the transportation by sea around the Cape of Good Hope was costly. The East Indian report says that the 195,593 tons of steam coal which it consumed in 1882 cost it $2.02 per ton, $1.06 cents of which was for transportation (apparently over its own lines), and 191,184 tons of it came from its own collieries. This is below the average cost of fuel in this country, and very good fuel it would seem to be, as there are 46,275 train-miles per ton of coal. Just how far the cheapness of work is due to large train-loads, we are unable to ascertain, as passenger and freight-train mileage are not given separately. But either the freight or the passenger train load, or both, must have been large, as there is an average of 97½ passenger miles *and* 124 ton-miles per train-mile. The average passenger-train load on our more important roads does not often reach 65, so that there must inevitably be a large one on the East Indian. The very largest average freight-train load in this country is, we believe, 267 tons, on the Philadelphia & Erie last year and also the year before. With this average for East Indian freight trains, its average passenger-train load would have been 182, against 46 on the Pennsylvania Railroad, 69½ on the United Railroads of New Jersey, 7.9 on the New York Central, and 44¼ on all the railroads of the United States in the census year. If the East Indian average freight-train load was less than 267 tons, its average passenger-train load was more than 182, and this we imagine was the case. The passenger traffic there is more like our immigrant traffic on the trunk lines than anything else in this country, and it is entirely practicable to haul such passenger trains anywhere, and probably easy to fill them in the crowded population of India at the regular fourth-class rate of 0.573 cent per mile, and necessary, we may add, to get very large train-loads to make the average fare of 0.64 cent per mile pay.

We find here that the English managers of this railroad have adopted a policy suited to a country and a population radically different from that of England—

an adaptability, by the way, which the English have not always shown in other parts of the world. They have at home an enormous freight and passenger traffic, carried short distances, requiring speed, promptness and frequent service, and they have given what was required, charging high rates for both passengers and freight. In India there was an enormous population, chiefly subsisting on incomes but a fraction as large as those of European peasants, but ready to travel at a price within their means. The vast passenger traffic of the East Indian Railway and its extremely low rate shows with what success this peculiarity has been met. The freight traffic there is probably less important, but the low wheat rate that went into effect last June shows that in India as well as in this country the railroads have learned to adapt their rates to the requirements of their traffic.

The Telegraphers' Strike.

The strike of telegraph operators and linemen is causing a great deal of embarrassment to the business of the country, which is borne the more impatiently because the general feeling is that the strike might have been avoided if the Western Union officers had met their employés in a different spirit. They demanded a list of those for whom the chief of the organization of the telegraph employés demanded higher wages and shorter hours. It was, of course, proper that the company should know whether the persons who made demands for the whole body of its employés really represented them, or the greater part of them, or any part of them; but evidence of this could probably have been obtained if it had been asked for directly, and the action of the company indicated that it objected to "recognizing" the telegraphers' brotherhood, without regard to its representative character. This is a relic of a superstition which some employers still cherish; but the tone of the press, even of that large and influential part which condemns the strike, shows that this superstition finds little favor in public opinion. No employer should object less to a combination of employés than the Western Union Telegraph Company, because it is itself one of the completest combinations of employers of a certain kind of labor that the world has ever seen. To suggest that this sole employer, we might almost say, of telegraphic labor should negotiate with its employés one by one is simply absurd. It would not be possible, unless we stretch the word "negotiation" to cover terms dictated by the employer. If the company is to negotiate at all—give its employés any chance to say what they want and what they will take—an organization of its employés and representatives of them with whom the managers of the company can discuss the questions at issue is indispensable, and the employés have as much right to combine to secure the best wages and treatment they can get as capitalists have to combine to establish a telegraph system.

In this case, as in some branches of railroad service, the working of supply and demand is too slow, and the public need of uninterrupted service too great, to make a strike sufferable or a fair means of establishing wages. The Western Union is the sole dependence of most of the country for telegraphic service. The community should not be liable to have this now necessary service entirely interrupted while employer and employé are trying to settle the basis of wages, and we risk little in saying that it will not always endure such an interruption from such a cause. And if *all* the telegraphers unite in demanding excessive wages, the telegraph company is for some time almost helpless, for it takes months, at least, to make a telegrapher, and however remunerative the employment may be and however numerous the persons offering to learn it, a long time must elapse before the lines could be worked as efficiently as before. On the other hand, the telegraph company, which is almost the sole employer, can make a sudden and great reduction in wages below what the labor market justifies, because it has little or no competition for that peculiar kind of labor. It is true that it must on the whole and in the long run make the occupation as remunerative as others which require similar ability and training, else it will get no recruits, of which it has to enlist a small army yearly in order to keep its force good; the reverse does not work effectively in a monopoly or an approximation to one. Though the high wages paid may cause an excess of men to *offer* themselves for the positions in which the business is learned, the employer is not likely to engage more men than it has need for, any more than if it paid very low wages—less, rather. It is true that the Western Union is not a complete monopoly, and that there is considerable employment for telegraphers out of the Western Union service and out of the service of other telegraph companies; but the condition approximates that of a monopoly, in the sense of the sole employer of a certain class of labor, so nearly as to modify greatly the operation of supply and demand on this kind of labor.

This is a reason, as well as the public nature of the service, for such an organization of employés as to give no room for strikes; but we may be sure that no such organization will be possible unless it provides some means for the employés to negotiate concerning their wages and treatment through their own representatives.

The telegraphers ask for reductions in hours and advances in pay, amounting, it appears, to an increase of 30 per cent. in their pay per hour. This is an enormous advance. It is made after four or five years of exceptional activity in business and demand for labor, in which men's opportunities for bettering themselves by changing their employment or otherwise have been unusually great. Under these circumstances we should expect to see many withdrawals from an underpaid occupation. Even if lack of familiarity with any other occupation should keep men in one which is underpaid, at least it cannot be kept recruited with suitable new men in such times. If in these four or five years telegraphing has been an occupation offering less than the average inducements, then there must have been an insufficient number of persons *of the right kind* seeking opportunities to learn the business. How this has been we do not know. With the construction of 28,000 miles of new railroad within three years, there must have been an unusual demand for operators. Whether new men, as good as the old ones, have come forward plentifully to take the places vacated, we cannot say: but it is a question which will probably determine finally whether telegraph wages shall be advanced. But even if the demands made by their employés are altogether unreasonable, the telegraph companies should receive them respectfully, discuss them dispassionately and fully with the employés' representatives, and return an answer as to their fellow men and equals; just as they do with the manufacturers of whom they purchase their supplies. The "high-and-mighty" method of dealing with employés is really a relic of the ages of slavery and serfdom, when the master ordered and did not bargain. If sometimes organizations of employés take on something of the same tone, and proceed like an army in war rather than a body of peaceful citizens trying to make the best bargain possible, they can plead the example of generations of "masters" in excuse.

Some commercial bodies have urged that the matter at issue between the telegraph companies and their employés be left to arbitration, and one has offered to furnish part of the arbitrators. This is a reasonable way of settling the question, the more so because if both parties agree to accept the award, work may be resumed at once, pending the arbitration, and the inconvenience to the public cease. It would have been a very wise thing in the Western Union to have offered to arbitrate in the first place, thereby showing anxiety to prevent interruption of the service to the community for which it exists. Cases no doubt exist in which an employer cannot safely agree beforehand to accept any award that arbitrators may make; for the margin between profit and loss may be so narrow that the wages awarded would make the business a losing one. But this is not one of these cases, and the great telegraph company may lose more by the public ill will than by any advance of wages that arbitrators would be likely to award.

The Wheat Crop.

The National Millers' Association has made a report of the prospects of this year's wheat crop, which gives the following as the probable yield of leading states, by which we have placed last year's yield:

	1883.	1882.	Increase.	Decrease.
New York	10,800,000	12,145,200	.....	1,345,200
Pennsylvania	22,300,000	20,300,700	1,999,300	.....
Ohio	23,250,000	43,453,600	.....	20,203,600
Michigan	23,300,000	32,315,400	.....	9,015,400
Indiana	25,000,000	45,461,800	.....	20,461,800
Illinois	23,536,000	52,302,900	.....	28,766,900
Wisconsin	18,500,000	23,145,430	.....	4,645,400
Minnesota	35,000,000	33,030,500	1,969,500	.....
Dakota	18,000,000	11,460,000	6,540,000	.....
Iowa	17,850,000	25,487,200	.....	7,637,200
Nebraska	16,500,000	18,300,000	.....	1,800,000
Missouri	17,624,700	27,438,600	.....	9,813,900
Kansas	23,000,000	31,248,000	.....	8,248,000
California	42,750,000	36,046,600	6,703,400	.....
Texas	2,100,000	4,173,700	.....	2,073,700
Maryland	9,000,000	8,655,600	344,400	.....
Virginia	8,200,000	8,311,400	.....	11,400
Kentucky	11,200,000	17,250,000	.....	6,050,000
Tennessee	6,280,000	9,971,200	.....	3,691,200
Georgia	3,400,000	3,812,900	.....	412,900
Total	357,690,700	464,310,700	17,556,600	124,176,600
Net decrease				106,620,000

The synopsis of this report, telegraphed to the newspapers, said: "The report concludes with the following words: 'The shortage indicated by the May report was 93,000,000 bushels, compared with the crop of 1882, as estimated by the United States Agricultural Department in the states mentioned. The present outlook in the same states indicates a shortage of 10,760,700 bushels.'" This latter was evidently a mistake for 107,607,000 bushels; but it is probable the statement as printed, giving but one-tenth of the decrease reported to the Association, will be quoted and commented on and have a considerable effect, and that a correction of the figures will receive scarcely any attention, and reach the eyes of not one-twentieth of those who saw the original telegram, though it is manifest to any one having the least knowledge of the wheat production of the several states mentioned that the decreases immensely exceed the increases, without referring to a table of last year's production.

The millers at this season are usually "bears" in wheat, as they are about beginning their purchases of the new crop for manufacture. Later in the season, if they accumulate stocks of either wheat or flour, it is for their interest to have a bull market. If at the present time they have an unusually large stock accumulated, they may be more interested in selling that at an advance than in purchasing new wheat at a decline for future grinding. The interests of the millers need to be taken into account in considering an estimate like this, because these interests affect the judgment of the best of men, and the original estimates doubtless come chiefly from the millers of the different parts of the country, who naturally watch the wheat crop very closely.

The estimate is for some of the states lower than any other we have seen, and seems to exaggerate the bad condition of the crop. It does not cover the whole country, but the states which it includes produced 93 per cent. of the total in the United States last year, and the only wheat states of importance omitted are Oregon and Washington, which last year produced 14½ millions of bushels. The winter wheat belt—Ohio, Michigan, Indiana, Illinois, Missouri and Kansas—is reported as producing 96,509,600 less than last year—135,710,700 bushels, against 232,220,300, a decrease of 41½ per cent. This is a smaller production than this group of states had in 1881 even (158,223,000 bushels), the states which have a less yield this year comparing as follows:

	1883.	1881.	Decrease.
Ohio	23,250,000	38,520,000	15,270,000
Indiana	25,000,000	31,353,000	6,353,000
Illinois	23,536,000	26,822,000	2,286,000
Missouri	17,624,700	20,399,000	2,774,300

Against which there is an increase of 2,080,000 in Michigan, and of 3,091,000 in Kansas. The estimate for Illinois agrees nearly with that of the United States Department of Agriculture; the Illinois Department estimates the production as 7,000,000 less.

The National Department's report for July 1 indicated a production of 79 million bushels less than last year; the Millers' Association makes the decrease 28 millions greater. The difference is equivalent to about 7 per cent. of the entire crop, which is no trifle. While the Millers' Association estimate may exaggerate the decrease, there has been nothing whatever to indicate that the Washington estimate, which would give about 425,000,000 bushels, was too small, and there has been some injury to the crop since, though probably not enough to make a difference of more than a few millions.

June Accidents.

Our record of train accidents in June, given in full on another page, shows for that month a total of 91 accidents, in which 38 persons were killed and 95 injured. This record is the shortest we have had since June 1882.

As compared with June of last year there was an increase of 19 accidents and of three in the number killed, but a decrease of 98 in the number injured.

The record includes 33 collisions, in which 26 persons were killed and 58 injured; 55 derailments, in which 10 persons were killed and 35 injured, and 3 other accidents, in which 2 persons were killed and 2 hurt. Twenty-five of the killed and 51 of the injured in the collisions were railroad employés, as were all of the killed and 26 of the injured in the derailments, and all of the killed and injured in the other accidents.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:		
Rear collisions	22	
Butting collisions	8	
Crossing collisions	3	
		— 33
DERAILMENTS:		
Broken rail	1	
Broken frog	1	
Broken bridge	2	
Spreading of rails	8	
Broken wheel	1	
Broken axle	4	
Broken truck	3	
Accidental obstruction	2	
Cattle on track	5	
Land-slide	2	
Wash-out	3	
Wind	3	
Misplaced switch	4	
Malicious obstruction	2	
Unexplained	14	
		— 55
Boiler explosion	1	
Broken connecting rod	2	
Total	91	

No less than eight collisions were caused by misplaced switches; two were caused by trains breaking in two, two by failure to use proper signals, and one each by disobedience of orders, by fog and by runaway cars.

One of the broken bridges failed on account of the washing out of an abutment by a freshet. The other was an iron bridge, for the failure of which no reasons are given.

A general classification of these accidents may be made as follows:

	Collisions.	Derailments.	Other.	Total.
Defects of road	..	12	..	12
Defects of equipment	2	9	3	14
Negligence in operating	31	4	..	35
Unforeseen obstructions	..	14	..	14
Maliciously caused	..	2	..	2
Unexplained	..	14	..	14
Total	33	55	3	91

Negligence in operating was thus the direct cause of 38.5 per cent. of all the accidents. It is safe to say that one-half of them at least might have been prevented by proper care.

A division according to classes of trains and accidents is as follows:

Accidents:	Collisions.	Derailments.	Other.	Total.
To passenger trains	3	15	2	20
To a pass. and a freight	11	..	..	11
To freight trains	19	40	1	60
Total	33	55	3	91
Casualties:				
Killed by	26	10	2	38
Injured by	58	35	2	95
Total	84	45	4	133

This shows accidents to 124 trains, of which 34, or 27.4 per cent., were passenger trains, and 90, or 72.6 per cent., were freight trains.

Of the total number of accidents 61 happened in daylight and 29 at night, while in one case the time is not definitely given. June is the month when the nights are shortest.

The persons killed and injured are divided as follows:

	Killed.	Injured.	Total.
Employés	37	79	116
Passengers	1	16	17
Total	38	95	133
Per cent. of employés	97	83	87

Of the 33 collisions, 7 caused death and 9 injury, but not death; while of the 55 derailments 7 caused death and 10 other injury, while in only one of the other accidents there was death. In all 15 accidents caused the death of one or more persons; 19 caused injury but not death, while in 57, or 62.6 per cent. of the whole number, no serious injury is recorded.

The accidents for the first and second quarters of the year compare as follows:

	First quarter.	Second quarter.	Decrease.
Accidents	494	317	177
Killed	129	92	37
Injured	522	286	236

This shows in a very striking way the difference between the winter and spring months in railroading.

June was about an average month with respect to traffic. On most of the roads there was no crowding of trains or overloading of engines, as may be seen in the small number of collisions and the very small number of broken trains. The weather was not favorable, as there were many violent local storms of wind and rain, causing directly a number of accidents, and indirectly several others, in all probability, by the injury to the road-beds and track. In this respect it was much worse than June usually is in this country, for we do not expect the severe storms until later in the season.

The number of misplaced switches is still large, causing during the month 12 accidents—8 collisions and 4 derailments. We have heretofore had much to say of this class of accidents; perhaps it would be of little use to add more now, but it might be said that in a perfect railroad administration the *officer in charge of the discipline of the men at fault the division superintendent would be held responsible with them for a misplaced switch.* When the employés of lower grade learn that punishment will certainly follow carelessness of this kind, these accidents will be fewer.

But two malicious derailments are recorded, both of them by obstructions placed on the track.

But one broken rail and one broken wheel are recorded. The number of broken axles is perhaps a hint that the larger axle does not always accompany the increased weight of cars and their loads.

For the year ending with June the record is as follows:

	Accidents.	Killed.	Injured.
July	92	18	56
August	139	46	218
September	153	34	136
October	136	47	132
November	125	36	129
December	148	29	209
January	168	55	199
February	184	61	186
March	142	13	137
April	106	26	114
May	120	28	77
June	91	38	95
Total	1,604	431	1,688
Total, same months, 1881-82	1,323	412	1,473
" " " 1880-81	1,420	395	1,643
" " " 1879-80	861	202	753

The yearly average for the four years was 1,302 accidents, 360 killed and 1,389 injured.

The number of accidents in June was exceeded in every other month of the year. The number of killed was exceeded in four months only, while in nine months there was a greater number of injured.

The average per day for the month were 3.03 accidents, 1.27 killed and 3.17 injured; for the year they were 4.39 accidents, 1.18 killed and 4.60 injured.

The average casualties per accident were, for the month, 0.418 killed and 1.044 injured; for the year, 0.269 killed and 1.052 injured.

The averages per month for the year were 134 accidents, 36 killed and 141 injured. June was much below the average in the number of accidents and of injured, but above it in the number killed; this was due to a single fatal accident.

Rail and Water Grain Shipments.

The shipments of grain by rail have been a smaller proportion of the total Northwestern shipments this year since lake navigation opened than has been usual of late years. Water rates have not been unusually low, nor rail rates unusually high, though they have been well maintained. The shipments from the eight Northwestern markets by rail and by water for the 12 weeks that navigation has been open this year to July 14, compared with the shipments in the corresponding weeks of the four preceding years, have been, in bushels:

		By water.			P. c.
	By rail.	River.	Lake.	Total.	by rail.
1883	18,334,620	2,146,066	33,633,795	54,114,481	33.9
1882	13,058,035	895,151	19,074,736	33,028,722	39.3
1881	26,219,720	4,577,439	35,210,326	66,007,498	39.7
1880	19,388,253		50,906,737	70,294,989	27.6
1879	27,347,496		29,038,650	56,386,146	48.5

We have no record of the shipments by river (down the Mississippi) before 1881, but they were not so great then as in 1881. The rail shipments are, of course, greatly affected by the rates. These were irregular and very low in 1879, when the railroads carried nearly one-half the whole; for four weeks of the period they were also very low (15 cents per 100 lbs., Chicago to New York) in 1881, when the railroads carried two-fifths of the grain, though only 30 per cent. of it before the break in rates came. Rates were well maintained at 30 cents in 1880, and railroads got 27½ per cent. of the grain; but the movement was then so great that lake rates were high and the vessels carried one-half more than this year. The rail shipments then were very little (1,054,000 bushels) greater than this year, though the water shipments were 15 millions greater. Last year the circumstances were so peculiar that the movement was unusual. What little grain the West had to spare then was needed for home consumption and had to be distributed throughout the East and South, so that although rail rates were well maintained and water rates were very low (the shipments by water being but half as great as the year before), still nearly two-fifths of the grain was forwarded by the railroads, which alone could distribute it properly.

Though the railroads have this year carried more than one-third of the grain shipped from the Northwest since navigation opened, their proportion has tended to decrease. In the first seven weeks they carried an average of 1,825,000 bushels per week and 36½ per cent. of the whole, while an average of 3,170,000 bushels went by water; in the last five weeks the railroads have carried but 29 per cent. of the whole and an average of 1,111,000 bushels per week, while 2,718,000 bushels have gone by water. The rail shipments have thus fallen off 714,000 bushels per week (39 per cent.); the water shipments but 452,000 (14½ per cent.). This, perhaps, was to be expected under the circumstances. The vessels engaged in the grain trade have no other resource. They must carry grain or tie up. And this year the country east and south is so well supplied with grain that little is carried to supply them, and it is cheaper to send export grain by water.

At this time (after the middle of July) for several years past there has been a large increase in the rail shipments due to the marketing of new winter wheat from the Ohio valley and country in that latitude where wheat ripens early and the distance to the lakes is so great that grain is chiefly sent to the east by rail. It is questionable whether this will amount to much this year. In the first place the crop is very light—probably as bad as in 1881—and in the next place the demand is so light and prices so low that farmers are not likely to be in haste to market their wheat. Last year the rail shipments, which had averaged 1,088,000 bushels in the 12 weeks to July 15, and but 844,000 for the last three weeks of that period, rose to 1,564,500 bushels the following week, and averaged about 2,100,000 bushels a week for the next two months. But last year the world was bare of wheat when the harvest came; there was a larger production in the country than ever before, and a sharp demand for it. Just the reverse is true now. If rail shipments improve greatly it will probably be because of the marketing of more corn, due to the better prospects for this year's crop.

Lumber Traffic.

The *Northwestern Lumberman* reports the stock of lumber on hand July 1 at the several Western lumber markets. Below are the totals from four great districts for four successive years in *thousands* of feet:

	1880.	1881.	1882.	1883.
Miss. River and tributaries	563,228	668,218	787,698	895,871
E. Mich. and Lake Erie ports	413,687	455,300	518,840	597,100
Lake Mich. ports	583,546	585,741	620,900	697,250
Total	1,560,461	1,709,259	1,927,438	2,190,221
Miscellaneous	44,000	42,000	76,274	330,000

Under miscellaneous are included only Fond du Lac and Oshkosh, Wis., in 1880 and 1881, these and Cadillac, Mich., in 1882; but this year the 179 millions at Albany, 35 at Duluth, and 42 at other places than these three are included under this head, so that the totals cannot properly be compared. Therefore we have footed the other three groups only. It appears, then, that there was 263 millions (14 per cent.) more lumber on hand July 1 this year than last, and 481 millions (28 per cent.) more than in 1881, though it would seem that the demand should be less now. Of the increase over last year 108 millions (14 per cent.) was at points on the Mississippi and its tributaries, and but 76 millions (12¼ per cent.) at Lake Michigan ports. And since 1881, while there has been an increase of 28 per cent. in the total, Lake Michigan ports have increased but 111.6 millions (19 per cent.), while the Mississippi district has increased 227.7 millions (34 per cent.) Chicago has reduced its stock below that of last year, although it had an unprecedented amount on hand at the beginning of the year. Dealers there have been very slow to buy lumber at current prices this year, although they have had an enormous trade—though a little less than last year. The stocks on hand Jan. 1 and the receipts and sales at Chicago for the first half of the year have been, in *thousands* of feet:

	1880.	1881.	1882.	1883.
Stock Jan. 1	451,282	497,841	560,417	655,014
Receipts Jan. 1 to June 30	360,522	400,494	744,921	542,797
Total supply	811,804	898,335	1,305,338	1,197,811
Stock July 1	347,346	352,391	443,000	430,375
Sales	464,458	545,944	862,388	767,436

Thus the receipts this year were no less than 202,124 thousands (27 per cent.) less than last year, but there was so large a stock on hand at the beginning of the year that the supply was but 107,527 thousands (8¼ per cent.) less, and the sales were 94,902 thousands (11 per cent.) less. This is a considerable decrease, but it is not due to a light trade this year, but to an extraordinary one last year. Notwithstanding the decrease of one ninth from the sales of last year, this year's sales are still 221,492 thousands (40½ per cent.) more than in 1881, and 302,978 (65 per cent.) more than in 1880—both years of great prosperity and of greater consumption of lumber than ever before.

It would appear, then, that the lumber dealers (who, as being nearest to the buyers, should have the best judgment on this matter) anticipate a reduced demand hereafter at present prices, else they would not have neglected to keep up their stocks at a time when actual sales were large. Production is apparently fully as great as last year, and perhaps greater. The bad winter-wheat crop will reduce the demand in an important part of the country, but as in just this part of the country (with the exception of Missouri and Kansas) there is a prospect for a much better corn crop than the very bad one last year, there may be for the whole crop-year just as much ability to buy as the year before. But a large wheat crop would have an immediate effect on business, while the corn crop will not be felt for some months yet.

The Late John McFarland.

A notice of the death of John McFarland, late Superintendent of Motive Power on the Chesapeake & Ohio Railroad, which occurred on the 16th inst., was published last week. An old friend and associate of his writes that "he had not been well since his return from attendance at the Master Mechanics' Convention at Chicago, and in fact was suffering at the time he left Chicago, the night of June 21, with liver trouble, and was advised when he reached home the 24th, by his physician, to rest and submit to medical treatment for a few days, but his official duties pressing upon him, he failed to do so, and kept up until the 5th inst., by which time his disease had made such progress that medical skill could not arrest it."

In a notice of his death in the Richmond *Dispatch* it was said:

Mr. McFarland was a man of first-rate qualifications for railroad business, and his services were always in demand He was clear-headed, even-tempered and well-skilled in the matters of which he had charge; was a good diciplinarian, and kind and considerate to the men under him. To those who had claims upon his good-will or affection there was no service that he would hesitate to render, no sacrifice that he would not willingly make. To the orphan children of his sister he acted the part of a loving father. The public thought of him only as a calm, upright and methodical business man; only those close to him knew of the depths of tenderness and goodness in his heart; of his love for his fellow men, and of his concern for all that was of interest to the community in which he lived. His life was an honest and useful one; his example was a valuable one; his works survive, and forever green will his memory be in the hearts of all his kindred, personal friends, and associates in business.

He was a member of the Master Mechanics' Association for a number of years past, and had just been appointed a representative member of the Car-Builders' Association at its last meeting. He was universally liked by the members of those associations, and of his standing in his own community a gentleman who was formerly his superior officer bears testimony that "no man was more respected and esteemed both officially and socially than John McFarland."

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Buffalo, New York & Philadelphia.—Track is laid on the *Olean Branch* from Salamanca, N. Y., southeast to Tuna Creek, 6 miles.

Cincinnati & Eastern.—Extended from Ottawa, O., east to Henley, 3 miles.

Evansville, Washington & Brazil.—Extended from Petersburg, Ind., southward to Oakland, 14 miles.

Louisville, New Orleans & Texas.—Track laid from Vicksburg, Miss., north to Yazoo Crossing, 8 miles.

Norfolk & Virginia Beach.—Completed from Norfolk, Va., east to Virginia Beach, 20 miles.

The following was accidentally omitted last week:

St. Paul, Minneapolis & Manitoba.—The *Grand Forks Extension* is extended from Bartlett, Dak., west by north to Devil's Lake, 19 miles.

This is a total of 70 miles of new railroad, making 2,658 miles thus far this year, against 5,304 miles reported at the corresponding time in 1882, 2,615 miles in 1881, 2,424 miles in 1880, 1,122 miles in 1879, 900 miles in 1878, 751 miles in 1877, 1,010 miles in 1876, 538 miles in 1875, 839 miles in 1874, 1,872 miles in 1873, and 3,237 miles in 1872.

BRITISH RAIL EXPORTS TO THE UNITED STATES continues very light. In June they were but 5,381 tons, and for the half-year then ending but 32,255, or an average of 5,376 tons per month—enough for about 367 miles of track, while our average monthly consumption was about 142,116 tons last year and 165,954 in 1881. The consumption is less this year, but it is doubtless safe to say that the imports have not made up 4 per cent. of it. The exports ceased all at once, as it were, after last October. In the eight months since then they have varied comparatively little, but have been uniformly small, the largest being 7,652 tons, in May, and the smallest 4,096 tons, in February; while the average in 1882 until after October was 18,363 tons, in the whole year 1881 24,178 tons, and in 1880 18,273 tons.

For five successive years the exports of steel and iron rails from Great Britain to this country have been, in the half-year to June 30, in tons of 2,240 lbs.:

	1879.	1880.	1881.	1882.	1883.
Steel rails..	7,429	62,907	92,746	101.234	29,856
Iron rails...	301	62,671	65,085	20,567	2,399
Totals....	7,730	125,578	157,831	121,801	32,255

We did not fairly begin to import rails until August, 1879, but in the last half of that year imported about five times as much as in the first half. From that time until last year we may be said to have taken all the rails we could get. Last year the facilities for production had been so increased that prices fell greatly, and we imported less than the year before, and much less than we could have got had we wanted them. This year the imports are, compared with the consumption and with the imports of the three years next preceding, but trifling. The exports of iron rails to this country this year have not been 4 per cent. of what they were in 1880 and 1881, and but 12 per cent. of what they were last year. With steel rails to be had for $37½ a ton in this country, it is not surprising that iron should not be wanted.

But while the "boom" in railroad construction in this country which gave so large a market for British rails is over, in other countries it seems to be higher than ever before. For four successive years the exports from Great Britain to countries other the United States have been:

	1879.	1880.	1881.	1882.	1883.
Steel rails	144,336	170,652	174,641	256,585	362,097
Iron rails.....	18,967	21,110	8,342	13,029	13,892
Totals...	163,297	191,762	182,983	269,614	375,989

Thus these other countries have made large increases in their demands on England for rails since 1881, taking in the aggregate more than twice as much as in that year, and more than counterbalancing the reduction in exports to this country. But these countries take very little iron, and have taken very little in all five of the years, including the three when we took so much.

The United States is now comparatively an unimportant customer of Great Britain for rails, though until this year it had been the chief consumer of them since 1879. In 1880 during the half year it took nearly 40 per cent. of the total British exports, in 1881 47 per cent., in 1882 31 per cent., this year less than 8 per cent. In the list of countries to which rails are exported, which we have led so long, we are surpassed this year by British India, which took 84,845 tons to our 32,255, Australia 62,910 tons), Italy (36,167 tons); while the unspecified "other countries," among which is Mexico, took 125,694 tons, against 74,493 tons in 1882 and 32,649 in 1881. All the countries that we have named have increased their takings this year, and India and Australia very largely. On the other hand Canada has taken less than for two years—30,181 tons this year, against 34,440 last year and 43,746 in 1881.

A NEW CHICAGO APPORTIONMENT is to be made, both the Chicago & Atlantic and the Chicago, St. Louis & Pittsburgh having applied for a share of the freight and the Chicago, St. Louis & Pittsburgh for a share of the live stock. A meeting of the Chicago committee (not of the Joint Executive Committee) was held in New York last week, at which the subject was discussed and preliminaries arranged. There being no agreement as to the percentages in the new division, the matter is left to Mr. Fink, to whom the several companies will submit arguments in support of their claims, with an appeal to Mr. Adams. There has been some uneasiness with regard to the Chicago shipments, not so much because of the new roads, perhaps, as because of the recent change in the proportions of business going by the old ones, the Chicago, St. Louis & Pittsburgh and the Chicago & Grand Trunk taking much more than their proportion and the Vanderbilt roads much less. As the two roads carrying more than their proportion are feeders of the Erie, and as its own line, the Chicago & Atlantic, has been carrying a very large share of the freight also, it was suspected that that company was in some way making special rates. But it was agreed at last week's meeting that those roads which had carried more than their proportion of freight should pay over the *gross* amount of the excess of their earnings to those which were short. The last settlement had been to April 1, and heretofore an allowance of 60 per cent. for expenses has been made to the road carrying the excess, which left it an object for each road to carry all it could above its proportion. The new rule will make every ton carried in excess of its proportion a cause of loss to the road carrying it.

The new Chicago pool is to date from July 1, and to last for five years. This is the best evidence that could be given of the confidence the railroad managers have in the advantages of the organization. We believe that there is not one of them that would see without grave apprehensions the dissolution of the combination. It has been argued foolishly that the multiplication of roads and the falling-off of traffic would make the roads break up their combination and each get all it can for itself. This must mean that some of the roads could make more money if these roads did not co-operate and divide the traffic. Not one could. The inevitable result of each road's working independently would be a reduction of the profits of every road, and all the managers know it, and that is what makes them adhere to the combination. Very likely some might get a larger share of the *traffic* than is awarded them in the pool, but the companies have learned pretty thoroughly that 20 per cent. of a traffic at a profit of 50 cents a ton is not worth so much as 10 per cent. of it at a profit of $1.50 or $2 a ton. And the lighter the traffic the more anxious they are to continue their co-operation. When there is traffic enough to fill all the cars that can be got, no combination is necessary to keep up rates; but when every road has its sidings crowded with empty cars, each road for itself means no profit for any one. Now that the companies have had experience in co-operation and have found that their agreements are carried out, they have confidence in its working, which formerly was wanting.

PROVISION EXPORTS in June show an immense increase in the exports of fresh and salt beef, tallow, butter and cheese, but a decrease in bacon and lard. For the half year ending with June the exports were:

	1883.	1882.	Inc. or Dec.	P. c.
Fresh beef.....	55,462,983	29,164,832	+ 26,298,151	90.2
Salt beef	22,553.044	21,661.574	+ 801,470	4.1
Tallow	25,188,973	25,914,962	— 725,989	2.8
Butter.....	8,119,800	3,477,278	+ 4,642,522	133 2
Cheese	32,829.034	38,095,082	— 5,266,048	13.8
Total cattle prod'ct.	144,153,834	118,313,728	+ 25,840,106	21.8
Value.....	$14,962,512	$11,721,111	+ $3,241,401	27.7
Bacon	172,627,113	195,308,145	— 22,681,032	11.6
Hams..	30,526,121	16,777,130	+ 13,748,991	82.0
Pork....	32,746,426	38,525.954	— 5,779,528	15.0
Lard.....	109,741,749	119,363,634	— 9,621,885	8.1
Total hog product..	345,641,409	369,974,863	— 24,333,454	6.6
Value.....	$37,552,925	$38,987,079	— $1,434,154	3.7
Total, lbs	489,795,243	488,288,591	+ 1,506,652	0.3
Total value.....	$52,515,437	$50,708,190	+ $1,807,247	3.6

On the whole the number of pounds exported was very nearly the same both years, there being 25.8 millions *more* cattle products and 24.3 less hog products. Prices are so much higher, however, that the value of the exports was 3½ per cent. more this year. The increase in fresh beef and in butter is enormous, and also that in hams. The year compared with, however, was the worst one for exports for many years. The exports of hog and products for the June half-year for five successive years have been, in pounds:

Year.	Hog products.	Cattle products.	Total.
1883.	345,641,409	144,153,834	489,795,243
1882.....	369,974,863	118,313,728	488,288,591
1881....	596,924,734	183,517,972	780,442,706
1880.....	803,160,740	109,389,283	912,550,023
1879.....	650,051,602	214,207,865	864,259,467

Thus the exports of hog products for the half-year are not only a little (7 per cent.) less this year that last, but are 42 per cent. less than in 1881, 51 per cent. less than in 1880, and 47 per cent. less than in 1879. And though their is an increase in the exports of cattle products of 22 per cent. over last year, they are still 21½ per cent. less than in 1881, 31 per cent. less than in 1880, and 33 per cent. less than in 1879. It is only because last year's exports were extraordinarily small that this year's exports appear even tolerable. They are, actually, extremely unsatisfactory and about as much so in June as for the half-year. The June exports for five years have been:

Products:	1879.	1880.	1881.	1882.	1883.
Hog	83,416,796	111,287,056	60,872,061	48,526,116	44,225,521
Cattle.....	22,837,691	46,285,991	41,228,747	20,377,907	34,483,700
Total.....	106,254,487	157,573,067	102,100.808	68,904,023	78,709,221

Thus the total exports this year in June were but half as great as in 1880 and 23 per cent. less than in 1881, though 14¼ per cent. more than last year. The large gain (70 per cent.) over last year in exports of beef and dairy produce still leaves them less than in 1880 and 1881, and the hog products exported are less than in last year even. This is a very unfavorable feature of our national economy, though probably the decrease in exports is due about as much to increase in home consumption as to decrease in production, especially in beef and dairy produce, of which the production has probably been rather greater this year than ever before.

CHICAGO THROUGH RAIL SHIPMENTS EASTWARD by the six roads in the pool for the week ending July 14 for four successive years have been:

	1880.	1881.	1882.	1883.
Tons..... 34,589	62,638	22,5b9	27,456

Thus the shipments of the week this year were 4,857 tons (21½ per cent.) more than in the corresponding week of last year, but 35,182 tons (56 per cent.) *less* than in 1881 (during the railroad war, with rates 15 cents per 100, against 25 cents now), and 7,133 tons (20¾ per cent.) less than in 1880, when the rate was 30 cents.

Of the shipments of the week this year 14.3 per cent. went by the Chicago & Grand Trunk, 19.2 by the Michigan Central, 19 by the Lake Shore, 26.5 by the Fort Wayne, 15.4 by the Chicago, St. Louis & Pittsburgh, and 5.6 per cent. by the Baltimore & Ohio. Thus 38.2 per cent. went by the two Vanderbilt roads, and 41.9 by the two Pennsylvania roads, against their 45.5 and 35.5 in the pool.

For seven successive weeks the Chicago shipments have been:

Week Ending.						
May 31.	June 7.	June 14.	June 21.	June 30.	July 7.	July 14
25,054	26,093	29,399	27,449	30,718	23,584	27,456.

The shipments of the second week of July were 17 per cent. more than the week before, but 10 per cent. less than in the last week of June, but only equal to the average of the seven weeks, which is a very small amount.

For the week ending July 21, the incomplete report of eastward shipments, through and local, of flour, grain and provisions, gives a total by the eight roads of 24,600 tons against 17,878 tons in the corresponding week of last year, and 24,834 in the previous week of this year. Of the shipments last week 2,987 tons (12.2 per cent.) went by the Chicago & Atlantic, and 1,445 tons (5.9 per cent.) by the Nickel Plate, leaving 20,168 tons for the six lines in the pool.

FOREIGN IMMIGRATION was nearly as great in June this year as last; but immigration had already begun to fall off in June last year. The arrivals were 75,034 this year and 84,786 last, a decrease of 13 per cent.

For the fiscal year ending with June the arrivals of immigrants were 24 per cent. less than last year, and 10½ per cent. less than in 1880-81, but larger than in any other year in the history of the country. This immigration with the natural increase makes the population of the country July 1 about 55,360,000, an increase of 1,675,000, or 3⅛ per cent. The immigration added 1⅛ per cent. to the population, and though much more in numbers than in years previous to 1880, was proportionally not so great as in many of them. For instance, in 1854, the 427,833 persons that arrived were equivalent to 1⅜ per cent. of the population, the 379,466 that came in 1851 to 1⅝ per cent. Thus the extraordinary immigration of the past few years does not change the character of the whole population so much as the smaller immigration 30 years ago. Last year it was equivalent only to an addition of 312 to the population of a town of 10,000 inhabitants. The immigration of the past four years, however, has been equal to 5 per cent. of the population of 1880 and about double the population of the city of New York in that year.

The number of immigrants arriving in each of the last six fiscal years has been:

1878.	1879.	1880.	1881.	1882.	1883.
138,469	177,826	457,257	669,431	788,992	590,114

In 1878 the arrivals were less than in any other year since 1862. They were very large in 1865, and increased afterward, until they culminated in 1873 with 459,803, and then fell off rapidly until 1878. The falling off last year marks a reduction in the demand for labor in this country and better times in Europe, and until these circumstances change, we may not expect immigration to increase. Indeed, we may expect it to fall off still farther, for last year immigration was actually very large.

WATER RATES during the four or five weeks since we noticed them last have not fluctuated much until within a week, when there was a considerable advance in ocean rates. The rate on grain by steam from New York to Liverpool, which for some time had been from 3d. to 3⅛d. per bushel, has risen to 5d. and 5⅛d.

Lake rates when we last noticed them were about 2 cents a bushel for corn, and 2¼ for wheat from Chicago and Milwaukee to Buffalo. Soon afterward they advanced ¼ cent but after about a week they fell to the old figures, at which they remained until Monday last, when they rose to 2¼ and 2½ cents.

Canal rates have fallen about ¾ cent a bushel, and are now quoted at 2½ cents a bushel for oats, 3¼ for corn and 3½ for wheat from Buffalo to New York, which is ⅛ cent lower than the lowest rate last year, and ¼ lower than the lowest rate in 1881. But this year's rates are more profitable to the boatmen, as they are relieved of the toll of 1 cent per bushel.

At the present rates it costs about 6 cents a bushel for corn and 6½ for wheat to be carried by lake and canal from Chicago to New York, against 14 and 15 cents by rail. The water rate is about as low as it has ever been, and the water route is getting a larger proportion of the shipments than usual, but yet not an unusually large amount.

EDITORIAL CORRESPONDENCE.

The Chicago Exposition of Railway Appliances.

The "Railway Press Room" was one of the features of the exhibition; the several railroad and a few other newspapers having offices there, where their publications were shown. A newspaper shows itself so constantly that nothing very striking can be expected of it when put formally on exhibition, unless it is the immense bulk that the volumes for several years make. Among the papers represented was the *Daily Graphic*, of New York, which published many illustrations of exhibits just as they were shown. In its issue of July 3 the reader may find an illustration of this "Railway Press Room," and also engravings of much more interesting exhibits. One of the "John Bull" locomotive, one of the famous locomotive "No. 1" of the Stockton & Darlington Railroad, which dates back to 1825, and of the modern English engines exhibited; one of a New York & Harlem street car, the "John Mason," which is designated "the first street car," and bears on its door the words, "Stephenson's patent"—a name known on street railroads now throughout the world. There is also in this sheet a view, perhaps not taken from life, but life-like, nevertheless, of the "car-coupler fiend" in full operation, and of various exhibits.

We resume our notes of the exhibitors with John J. Towers, of Brooklyn, N. Y., who exhibited a case of tools, including planes, combination monkey and pipe wrenches

screw drivers, padlocks, etc., etc., of which he is the manufacturer.

Farrington & Co., of New York, had a very elaborate booth, in which they exhibited a great variety of specimens of their varnishes, which are well known, and of which they are extensive manufacturers. The booth was one of the most elaborate specimens of work in the Exposition, and no expense or pains were spared to show the articles which they manufactured to their best advantage.

The Western Electric Company, of New York and Chicago, had a booth in which it exhibited a great variety of electrical apparatus, which it is impossible for us even to enumerate.

Samuel Laycock & Sons, of Sheffield, England, exhibited a great variety of hair cloth, curled hair and hair carpets, for railway use; also patent railway car blinds; articles which are almost unknown in this country, and which probably were very little observed by visitors to the Exposition on account of the modest display which was made of them. Some of their colored fancy hair cloth, and what they call hair reps, give one a new idea of the capacity of this material for producing textile fabrics. Their fancy hair blind cloth is a most beautiful fabric, and owing to the facility with which it can be kept clean, would seem to be admirably suited for car blinds or curtains, and would be worthy of the attention of the upholsterers of railroad cars. William Higgins, of Chicago, represents this firm.

M. M. Buck & Co., of St. Louis, had a large booth in which they exhibited a great variety of railroad supplies. These included all the articles which are ordinarily found in a railroad supply house. There were signal lamps of every variety, Hanlan's patent head-lights, scoop-shovels, hammers, picks, crow-bars, anvils, hand-cars, jack screws, ingot copper, cotton waste, switch stands, road scrapers, Ingersoll rock drills, pump packing, etc., etc. They also exhibited a model showing the Denver railway car brake connection. It is not easy to describe this without an illustration, but it is connected to the brakes on both trucks with one brake-staff, and can be used either with the continuous or power brakes, or by hand.

Berry Brothers, of Detroit, Mich., exhibited a booth in which they received their friends.

L. Marasse, of Chicago, exhibited a large case of drawing and surveying instruments and materials used by engineers.

The Adams & Westlake Manufacturing Company of Chicago exhibited a variety of head-lights, signal lamps and lanterns of every description. This company exhibited one of its signal head-lights with all the latest improvements. In this light the number of the engine is arranged on a glass placed diagonally on the front corner, which is illuminated by the direct light from the lamp. In the position in which it is placed, it can be read as the engine is approaching or as it is passing the station, or even after it has gone beyond the observer. The numbers are placed vertically, one above the other, and it is claimed that by this arrangement it can be read more easily when the engine is in motion than if placed horizontally. Immediately below the number there is a semi-cylindrical signal glass corrugated. These glasses are changeable, and different colors may be substituted one for the other. The lamp is placed upon a turn-table, so that it is easily accessible from any direction for lighting and trimming and cleaning. Great care has been taken in designing this lamp to make it as convenient as possible for handling by the engineer. This company also exhibited specimens of other head-lights without the numbers arranged as described and without the side signal lights. They are made both with and without the revolving table as desired. The exhibit also included a tail signal lamp which has a square case with four glasses, one on each side, the apertures being filled with different colored Fresnel lenses. The lamp is arranged so that it can be revolved and held in any one of these positions, with either face towards the rear or diagonally as may be desired. If the lamp is placed on the side of the car and is turned diagonally, the engineer can see one of the lenses by looking back, whereas the other lens to the rear shows to the track behind. It is very strong and built so as to be as serviceable as possible. The company also exhibited Nunn's station signals for day and night working. The day signal consists of an elliptical disk which is suspended on the outside of the station and is operated by a cord so that it can be shown with its broad side toward the line, or edgeways, which indicates line clear. The night signal consists of a lamp and a plate on each side of it with a red Fresnel lens in each. By pulling on a cord this plate and lens are removed from the face of the lamp, and the latter shows a white light. By allowing the red Fresnel lens to come in front of the lamp, the lamp shows red or danger. Two sides of the lamp are directed to the track each way.

The company also exhibit a great variety of centre and side lamps for railroad cars, of which it is an extensive manufacturer. Probably few persons could realize the variety of the design of these lamps without inspecting the exhibit of this company. It also showed a switch lamp similar in character to the tail signal lamp excepting that the body of the lamp is made of cylindrical form with lenses on four sides. This is attached to the top of the switch stand and of course is turned with it, so as to indicate the position of the switch. It also exhibited what is called the tornado lamp, the peculiarity of which consists in the fact that the light is confined by a tube extending up above the chimney and is not exposed to any draft of any kind, and is said to burn as well out of doors or exposed to the most severe draft as it will if entirely protected from it. This company had also a great variety of lanterns of different patterns and forms, which it would seem would be satisfactory to the taste of the most fastidious conductor. It also showed engineers' oil cans which in their way were works of art; also policemen's lamps, cab lamps and all the appliances used in connection with the illumination of cars or railroads.

Post & Co., of Cincinnati, who are large manufacturers of head-lights and other railroad appliances, had a booth in which they exhibited specimens of their work. Their head-lights are arranged with a revolving reflector so that they can be turned, trimmed, lit and cleaned without removing the reflector from the case. They also display the number of the engine somewhat in front of the head-light case, the number being painted on glass and illuminated by the light reflected from the parabolic reflector. The oil is contained in a reservoir, which is filled through a valve in the bottom, the same as the oil reservoir of a student's lamp. This reservoir is removable, and can be taken out from the case of the head-light, and filled in any convenient position, either in the engine cab, or wherever may be most desirable. They also exhibited specimens of other head-lights, one with a cylindrical case. They exhibited in two large cases samples of all the metal furnishings used in the inside of cars, including lamps, basket racks, locks and hinges, name plates for the doors, the bushings and the hangers for bell-cords, ventilator openers, name plates for saloons, window latches and lifts, coat and hat hooks, seat arms, seat-arm stops, spittoons, match strikers, brackets for curtain rods in sleeping cars, alcoves for water coolers, brush and comb-holders and, in fact, everything which is used in sleeping and ordinary passenger coaches. This includes a great variety of centre and side lamps, some of them of very beautiful design; also office and students' lamps. Most of these lamps are provided with ventilating tubes for carrying off the products of combustion without vitiating the air in the car. The decoration is of the most elaborate character, and shows how much attention is given to the pleasure and comfort of the traveling public by railroad companies of the present day. They also exhibited a case containing telegraph and telephone instruments of various kinds, of which they are extensive manufacturers. It would be impossible even to enumerate all the articles exhibited in the space at our disposal.

Pettibone & Mulliken, of Chicago, had on exhibition a variety of railroad supplies.

The Sand Blast Company, of Chicago, exhibited a booth inclosed with specimens of glass decorated by this process. These included every variety of glass for doors, windows, signs, etc., etc.

The Horton Chair Company, of Kansas City, exhibited a variety of its reclining chairs for railroad cars. These are extensively used on some of the Western roads, and in some cases have been substituted for sleeping cars. They are made so as to assume a variety of positions and are extremely comfortable. It would be impossible to give any idea of their construction without engravings. It must suffice to say that the back is made adjustable to a variety of positions and inclinations, and some of the chairs have a foot and leg rest which adds materially to their comfort.

H. W. Johns, of New York, exhibited a great variety of his asbestos material, including packing, paint, boiler covering, etc.

W. G. Creamer & Co., of New York, had a booth in which they exhibited a variety of railroad furnishings which they manufacture, including lamps, basket-racks and all the fixtures used on the inside of cars.

The Thielsen Truck Company, of Chicago, exhibited one of its well-known freight car trucks, the peculiarity of which consists in making the transoms of two channel bars bolted to suitable castings attached to a truck frame on the outside. This truck is also fitted with the Hewitt box-lid.

N. & A. Middleton & Co., of Philadelphia, exhibited a variety of their car-springs, which consist of small coils of spiral springs inclosed in a cast iron case. They had also a spring testing machine in their exhibit, in which the action of the springs could be shown.

James B. Clow & Sons, of Chicago, exhibited samples of the Syracuse Iron & Tube Company's iron and steel tubes. Not very much can be said of these tubes, excepting that the test-pieces indicated that they were made of excellent material, and seemed to be first-rate quality of goods. They also exhibited a variety of pipe fittings, steam gauges, etc.

The Manhattan Pump Company, of New York, exhibited its "invincible" hand pump. It is claimed for their pump that it can be used for any purpose for which pumps are employed. It exhibited samples of basin pumps to be used for sleeping cars, which as exhibited certainly worked very well and seemed to be a very compact implement.

The Eureka Cast Steel Company, of Lamokin, Pa., had on exhibition a variety of steel castings which it manufactures, including draw-bars for cars, cross-heads, links, rocker shafts, wrenches and driving axle boxes for locomotives; also Miller draw-hooks, and a great variety of other castings intended for various purposes.

The Cleveland Malleable Iron Company, of Cleveland, O., had on exhibition samples of malleable iron draw-bars.

The Chicago Car Roofing Company exhibited samples of its Acme galvanized iron car roof.

Bissell & Co., of Pittsburgh, Pa., had on exhibition a number of the patent car stoves of which they are manufacturers. This stove heats by convection, that is, a current of fresh air is introduced into the stove, and then warmed and distributed through the car by suitable pipes.

Ayer's Rubber Refrigerator Car Company, of Chicago, exhibited one of its refrigerator cars.

The Post Refrigerator Car Company, of Boston, also exhibited one of its cars.

Some one, whose name was not apparent, exhibited the Texas Trans-Continental Transportation Company's refrigerator car, built under Higgs' patent, by the Terre Haute Car Manufacturing Company.

The Lorenz Refrigerator Car Company, Hamilton, O., exhibited one of the Lorenz refrigerator cars.

The Tiffany Refrigerator Car Company exhibited one of its refrigerator cars.

The Ridgeway Patent Refrigerator Company, Limited, of Philadelphia, exhibited one of its cars.

Armour & Co., of Chicago, exhibited one of their refrigerator cars.

The Merchant's Dispatch Transportation Company exhibited one of its refrigerator cars.

A. W. Zimmerman, of Chicago, exhibited one of his latest improved refrigerator cars with car door and lock.

Henry A. Gouge, of New York, exhibited one of his patent refrigerator cars.

The Pullman Palace Car Company, of Detroit, exhibited a whole train of cars of the New York & Chicago Through Line *via* Erie Railway. This consisted of a baggage car, smoking car, dining car and day coach. It is impossible, with the time and space at our disposal, to give an adequate description of these cars. It can only be said generally that they were very neatly designed, and that the passenger car is a model of comfort. Of the workmanship it need only be said that it is of the well-known standard done at these shops, and which has made the Pullman Company celebrated the world over. The cars are lighted with the Pintsch gas lighting system. The passenger cars are heated with the Johnson heater. These cars are intended for the Chicago & Atlantic and Erie Railway Through Line.

The Muskegon Car & Engine Company of Muskegon, Mich., exhibited one of its snow-plows and flange shavers for single track. This was built on C. L. Heywood's patent. It resembles somewhat a large 8-wheel caboose car with an immense plow in front for removing the snow. The same company exhibited another plow built under the same patent for a double-track railroad.

The Industrial Works of Bay City, Mich., exhibited a portable steam shovel. They also exhibited a pair of steam cranes mounted on an 8-wheel car and intended for wrecking and other similar purposes.

The Vulcan Iron Works, of Toledo, O., exhibited what they call Stock's patent railroad excavator and wrecker, manufactured by Wilcox & Stock, of Toledo, O. The same firm also exhibited one of Stock's patent railroad snow cleaners, which is a wonderful machine, consisting of a cylindrical agitator in front for stirring up the snow, which is then drawn forward by a fan on top of the car and discharged by pipes on each side.

The American Railway Ditching Company, of Minneapolis, Minn., exhibited one of its ditching machines.

The Allen Paper Car Wheel Company exhibited a box car equipped with suspension car truck and with paper car wheels.

The Bucyrus Foundry & Manufacturing Company, of Bucyrus, O., exhibited one of the Thompson iron steam shovels and wreckers, which is illustrated on another page.

H. C. Goodell, of Atchison, Kan., exhibited one of what he calls his dry air refrigerator cars.

There was also exhibited what is called the Paige parlor and sleeping car, built by the Jones Car Manufacturing Company, but no information could be obtained concerning it.

The Magoon Heater Company, of Muskegon, Mich., exhibited one of its feed-water heaters for locomotives.

The Delaware Car Works of the Jackson & Sharp Company, Wilmington, Del., exhibited a day coach for the Chicago & Atlantic line. This car was equipped with the suspension car truck, also with the Washburn Car Wheel Company's car wheels.

The Pullman Palace Car Company exhibited a day coach for the New York, West Shore & Buffalo Railroad, also a dining car for the Northern Pacific line, with all the furniture, china-ware, etc., including a porter. This company also exhibited an emigrant sleeping car built for the Northern Pacific. This car has as roomy berths as any ordinary sleeping car, and, it would seem, is an addition very much needed for the emigrant traffic, as some of the emigrants who arrive in our country are subjected to a degree of hardship and discomfort which must be extremely discouraging on their first arrival in this country. The seats and the berths in the car exhibited are made of slats and no bedding is supplied, emigrants being left to their own resources in this respect. The same company exhibited one of what it calls its buffet cars, which are sleeping cars in which lunches are served from a compartment in one end of the car. This is certainly an addition to sleeping cars which would add very materially to the comfort of passengers. Tea and coffee can be served at any time, also plain lunch which needs no cooking. Probably the experience of most passengers has been that there is nothing they crave so much in the morning after being subjected to the discomforts of a sleeping car as a cup of hot tea or coffee. It is hoped that this particular feature will in time be introduced into all sleeping cars. The same company exhibited a narrow-gauge sleeping car for the Texas & St. Louis road.

The New York, New Haven & Hartford Railroad Company exhibited one of 100 cars built in its shops, and now in service on its road as a standard passenger coach. These cars are a much needed improvement on that line, and its passenger equipment is now equal to that of any other road in the country. The design of these cars is due, we believe, to Mr. Wheeler, one of the directors of the road, who is very much interested in the matter and has devoted much time to the equipment of the line.

The Chicago, Milwaukee & St. Paul Railway Company exhibited one of its standard parlor cars; also one of its standard dining cars, very elaborately decorated on the outside, and supplied with every reasonable comfort on the inside.

J. G. Brill & Co., of Philadelphia, exhibited a coach for the Cincinnati, Van Wert & Michigan Railroad.

A large number of street cars, of various patterns and designs were exhibited by different makers, for a description of which there is not the space nor the time.

The Oehrl Stock Car Company, Limited, of Belle Vernon, Pa., exhibited the Oehrl improved stock car.

Two stock cars were also exhibited for the New York & Lake Shore Express Co., built by the Lehigh Car Wheel & Axle Works of Catasauqua, Pa.

The Boston Stock Car Company exhibited one of its cars, which, it was said, was intended for the humane transportation of live stock.

The Hunter Stock Car Company exhibited a stock car built by the Michigan Car Company, of Detroit, Mich., owned by the American Live Stock & Meat Transportation Co.

The Pullman Palace Car Company exhibited a box car for the New York, West Shore & Buffalo Railroad.

An oil-tank car, owned by the Chester Oil Company, of Chester, Pa., and a box car built by the Michigan Car Company, of Detroit, for the Chicago & Alton Railroad were exhibited.

What is called a railroad scraper and leveler, patented by D. L. Harris and E. D. Carter, of Terre Haute, Ind., was exhibited, but no information concerning it was supplied.

The Lake Shore & Michigan Southern Railroad Company exhibited one of its caboose cars with a train indicator showing the number and section of a train. This car gives trainmen the maximum amount of comfort.

The Peninsular Car Works, of Detroit, Mich., exhibited a box car for the Northern Pacific Railroad.

The LaFayette Car Works of LaFayette, Ind., exhibited a caboose car and a standard box car.

The Ohio Central Railroad & Coal Company exhibited an 8-wheel coal car loaded with coal.

The American Continuous Draw-bar Company, of Aurora, Ind., exhibited a grain car equipped with its draw-bar.

The Central Support Car Truck Company exhibited a new box car with three trucks, and a gondola car which had been in service for 10 years, and the central support truck of which has been applied for three years. The mile tonnage, whatever that may mean, since the truck was applied was said to be 748,600 pounds.

The St. Charles Car Company, of St. Charles, Mo., exhibited one of its standard box cars.

The Chicago, Milwaukee & St. Paul Railroad Company exhibited two of its United States mail or postal cars.

The United States Car Company of Boston, Mass., exhibited one of its patent dump cars built on the Van Warmer patents.

George J. Burkhardt's Sons, Philadelphia, exhibited a large cedar tank, capacity 20,000 gallons.

The Farrell Foundry & Machine Company, of Ansonia, Conn., exhibited one of their railroad cranes. This has a iron centre-post and jib, consisting of channel bars, the gearing and all the attachments being of very compact and substantial design.

There were other exhibits which there was not time to examine before the closing of the exhibition, but our notes, it is believed, included all the more important ones.

THE SCRAP HEAP.

Locomotive Building.

The Brooks Locomotive Works in Dunkirk, N. Y., last week delivered two heavy switching engines to the Rochester & Pittsburgh road, and are completing four consolidation engines for the same road.

The Schenectady Locomotive Works in Schenectady, N. Y., are completing orders of 25 freight engines, 17 by 24 in. cylinders, for the Chicago & Alton; four consolidation engines, 20 by 24 in. cylinders, for the Kentucky Central road; eight passenger engines, weighing 45 tons each, with 18 by 24 in. cylinders, for the Canada Southern Division of the Michigan Central. They have lately taken orders for seven mogul freight engines, with 19 by 24 in. cylinders, for the Lake Shore & Michigan Southern, and 45 freight engines, with 17 by 24 in. cylinders, for the Chicago & Northwestern.

Car Notes.

The Goodwin dump car, which was exhibited at Chicago, on its return from that city took on a load of 25,000 lbs. of iron ore at Cleveland, and carried it to Haselton, O., where a satisfactory test of its working was made in the presence of a number of railroad men.

Bowler & Co., in Cleveland, O., last week received an order for 1,200 wheels for freight cars.

The Jackson & Sharp Co., in Wilmington, Del., last week delivered six new passenger cars to the Rochester & Pittsburgh road.

The Wason Manufacturing Co., at Brightwood (Springfield), Mass., recently delivered two new passenger cars to the New Brunswick Railway.

Bridge Notes.

Kellogg & Maurice at Athens, Pa., have taken the contract for two spans of the St. Charles bridge over the Missouri River, which is to be entirely renewed. They have also a contract for a bridge over the Rio Grande at Loredo, Tex., which is to have five spans of 450 ft. each.

The Morse Bridge Co. in Youngstown, O., has taken the contract for an iron bridge at Columbus, Ind., which is to cost about $30,000.

The Niagara Bridge Works in Buffalo, N. Y., are putting up a bridge over Tonawanda Creek on the New York, West Shore & Buffalo road.

Iron Notes.

The Springfield Iron Co. in Springfield, Ill., has just completed an addition to its mills 90 by 110 ft., with a wing 45 by 90 ft. This contains a plate mill for rolling steel plates for boilers and other purposes. The new mill has all the latest approved appliances; its machinery consists of a Porter-Allen automatic cut-off engine, with a cylinder 44 by 48 in., and a fly-wheel 27 ft. in diameter and weighing something over 30 tons. This engine is calculated to make over 100 revolutions per minute. Then comes the train of three-high plate rolls, which are 31 and 20 in. in diameter and 110 inches long. They are furnished with massive housings, pinions, spindles and coupling boxes, and also with a pair of small steam engines, whose only office is to work the screws which raise and lower the rolls. Accompanying the rolls are two massive tilting tables, each 30 ft. long, with driven rollers, which receive the steel as it comes from the furnace and send it backward and forward through the rolls until the work on it is complete. The operation of these feeding tables is very complete as well as interesting. By their use very heavy plates can be rolled, and with a very great saving of labor. When the plate is finished it is to be pushed off the end of one of those tables endwise on to a cooling bed. This consists of a series of cast iron boxes, filled with water to keep them cool, and furnished with loosely-fitting covers. The plates rest on these covers, and become perfectly straight and smooth while cooling, and before removal. This bed is over 40 ft. long, and arranged to accommodate a very long plate. When the plates are cool, they are raked off this bed sidewise, by hydraulic machinery, on to a bed where they can be allowed to accumulate if necessary. From this they are taken by a hydraulic crane, and either distributed on the floor preparatory to marking for shearing, or they are taken directly to the shears to be trimmed and cut into the shapes desired by the customers for whom they are intended. These shears weigh over 70 tons, are driven by a separate engine, and will take off at a single bite a piece of steel 100 in. long and 1¼ in. thick. When the plate is sheared, another hydraulic crane takes it up and swings it on to the cars on which it is to be shipped, a railroad track having been laid directly into the new mill for that purpose.

The Manchester Steel & Iron Co., of Pittsburgh, has made an assignment to W. W. Martin and Henry Stanton. The company owns a large blast furnace at Superior station, near Pittsburgh, and some ore and coal lands, the estimated value of the property and of the stocks of ore, coke and pig iron on hand being about $650,000, while the liabilities are said to be about $900,000 in all.

The Thomas Iron Co. at Hokendauqua, Pa., has declared a semi-annual dividend of 5 per cent.

Vulcan Furnace at Newberry, Chippewa County, Mich., is now in full blast, making a high grade of iron.

The South Tredegar Iron Works in Chattanooga, Tenn., have a heavy contract for spikes and splice-bars for the Louisville, New Orleans & Texas road.

The Musconetcong Iron Co. has put the smaller of its two furnaces at Stanhope, N. J., out of blast.

Belfont Iron Works at Ironton, O., have shut down in order to make necessary repairs and put in new machinery.

The puddlers employed by the Roane Iron Co. in Chattanooga, Tenn., recently asked for an increase in wages from $5 to $5.50 per ton, which was granted, after some discussion.

A plan has been proposed for the reorganization of the Union Iron & Steel Co., of Chicago. The indebtedness consists of $500,000 first-mortgage bonds, $684,000 second-mortgage bonds and $1,638,267 bills and accounts payable, making $2,821,267 in all. The plan is to organize a new company, which shall issue $1,600,000 common stock in exchange for the stock of the present company, and $3,000,000 preferred stock, to be exchanged for the present bonds and floating debt. The new company will then succeed to all the property of the present corporation. The success of the plan depends largely upon the immediate assent of the creditors.

Manufacturing Notes.

The Phosphor-Bronze Smelting Co., Limited, of Philadelphia, is now prepared to furnish all kinds of car and locomotive bearings and other castings in its phosphor-bronze S" bearing metal. Car journal bearings can be furnished bored out, if desired, at a very small advance in price.

Hewes & Phillips, in Newark, N. J., are building some tools of unusual size and weight, including slotting machines, planers and several very large lathes for heavy work.

The Rail Market.

Steel Rails.—The market is firmer, and the mills are so full that it is difficult to place orders for summer delivery. Quotations are steady at $38.50 to $39 per ton at mill for summer delivery, and 37.50 to $38 for winter orders.

Rail Fastenings.—Spikes are quoted at $2.60 per 100 lbs. in Pittsburgh, with the market weak. Track-bolts are quoted at $3 to $3.25 per 100 lbs.; splice-bars are a shade lower, at 1.9 to 2 cents per pound.

Old Rails.—There is more inquiry for old iron rails, but few sales. Philadelphia quotations are nominal at $21 to $22 per ton for tees and $25 for double-heads.

British Rail Exports.

For the month of June and the first half of the year the exports of iron and steel rails from Great Britain to the United States and to all countries are represented as follows by the Board of Trade, in tons of 2,240 lbs., for the past three years:

	June.			Six months.		
To United States:	1881.	1882.	1883	1881.	1882.	1883.
Steel rails	21,082	21,223	5,241	92,746	101,234	29,856
Iron rails	10,616	. ....	100	65,085	20,567	2,399
Total	31,698	21,223	5,381	157,831	121,801	32,255
To all countries:						
Steel rails	69,527	69,152	78,468	267,387	357,819	391,953
Iron rails	13,254	2,111	2,912	73,427	33,595	16,291
Total	82,781	71,263	81.380	340,814	391.415	408,244

The exports to the United States in June this year were about one-fourth those of last year, and one-sixth those of 1881. For the half-year the decrease is similar and is especially great in iron rails, which are not one-eighth those of last year, and *one-twenty-seventh* those of 1881.

But notwithstanding the large decrease in exports to the United States, the total exports of Great Britain were larger in the first half of this year than ever before. Against a decrease of 89,546 tons in exports to the United States there is an increase of 106,375 tons (40 per cent.) in exports to other countries.

A Luxurious Car.

The Jackson & Sharp Co. in Wilmington, Del., is just completing a new car for the Worcester Excursion Car Co. of Worcester, Mass. The car, which is the fourth built for that company, is called the "Edwin Forrest," and is thus described:

"The 'Forrest' is 66 ft. long exclusive of the platforms, one of which is 3½ and the other 4½ ft. wide. The front platform is provided with the combination Miller & Janney coupler and buffer and is arranged with extension footboards, which cover the steps at the sides and furnish a perfectly safe place inclosed with patent iron spring gates. The outside painting is dark green with gold trimmings. There are two doors at the end of the car, one opening into a passage-way and the other, in the centre, into a reading or smoking room, which is provided with a bath-tub, over which are placed cushions, which serve as a sofa seat by day and a berth by night. Overhead is a Wagner berth. Then there is also a table for card-playing or for writing purposes. A door opens from the reading-room into the passage way and one into the ladies' toilet-room adjoining, which latter is provided with a permanent washstand, sets of draws, cupboards, hooks for clothing and all necessary appliances of a first-class apartment of the kind. Next to the ladies' private room is a large stateroom provided with an upright parlor bedstead, blue plush chairs and permanent washstand. The baggage room connects with the stateroom on the right-hand side of the passage and is equipped with shelves and racks and a fire-proof safe with a combination lock, for the valuables of the occupants of the car. To the left is a small closet containing the portable tables and the table and bed linen, a neat umbrella rack on the outside being a new feature in car arrangements.

"The main saloon comes next, 24 ft. in length. The carpet is a rich green and gold Wilton, the same as is used throughout the car, while the woodwork is highly finished mahogany. The ceiling is in excellent taste, being hand-painted with designs of flowers and birds, and in the centre a medallion portrait of Edwin Forrest the actor, a good likeness copied from a card photograph. Two large, square four-light chandeliers in bronze will illuminate the room, which has sixteen berths. Eight of them are of the Wagner suspension pattern, and are exquisitely finished with the finest marquetry or inlaid work to be found anywhere. The lower berths are arranged by nickel-plated posts and rods, which sustain heavy canvas, all of which are removed in the daytime and packed away in four commodious lockers, also used as stationary sofa seats, two at either end of the saloon. In the daytime large and easy chairs of different patterns are brought into use, upholstered with the richest Florentine plush of changeable old gold tint with raised brown figures. Chairs of red leather are provided for dining purposes, small portable tables being erected when necessary. The metal trimmings of the apartment are in bronze, while the curtains are of Turkish designs in two colors, red and green, gold thread being woven throughout the odd figures. Like all the other rooms, handsome bevel-edged plate glass mirrors are placed in every available and otherwise unoccupied panel. The glass in the numerous doors is decorated with ground patterns representing varieties of game to be found on the Western prairies. To the left, on leaving the saloon, is a Searles hot water heater in a zinc-lined room, arranged so that the ashes can be dropped from the bottom. To the right is the drinking tank, and back of it the silver closet, shelves and grooves so arranged as to hold in position every needed article. Further on the left is the gentlemen's private wash-room with two permanent washstands and every imaginable provision for comfort and utility—gun racks, closets and hooks in abundance. As in the case of the ladies' room, water is obtained from a tank on the roof capable of holding about 75 gallons, which is first pumped from large tanks in the floor. A thoroughly equipped china closet, with refrigerators, etc., in which the cook and his assistant bunk, and a faultless kitchen, provided with range, cistern, water back, table, etc., completes the apartments. The kitchen opens by a large window on to a roomy platform, reached by a side door, where are the coal-boxes. The platform is inclosed closely with only one gate in the centre and no steps, a ladder being used when necessary to reach the ground. The car is so arranged that by leaving open the doors a continuous passageway is made from one end to the other. Electric bells connect throughout, and it is almost impossible to conceive of anything that is wanting. The car rests on two six-wheel trucks, the wheels being of the Washburne pattern. Large lockers and improved air brakes are suspended from the bottom of the cars, where are also hooks and rests for a ladder, tent poles, flag staff, etc."

Knew His Father.

It was on a train leaving Detroit the other day. A passenger had his baggage piled upon the seat so as to occupy the whole of it. Along came a man looking for some place to stow himself away. Halting in front of the seat he took in the situation, and said:

"Sir! I knew your father!"

"Did you? Pretty fair man my father was."

"Yes, sir, I knew him. He got his start by making and selling an itch ointment!"

"Ah! you must have known him for sure. Sit down—take half the seat and welcome. I'm real glad to meet one of my father's most profitable patients!"

It was strange that he wouldn't accept the offer, but for some reason he wouldn't.—*Free Press.*

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Gulf, Colorado & Santa Fe, special meeting, at the office in Galveston, Tex., Aug. 1.

Rutland, annual meeting, at the office in Rutland, Vt., July 31.

Dividends.

Dividends have been declared as follows:

Cedar Rapids & Missouri River (leased to Chicago & Northwestern), 1½ per cent., quarterly, on common stock, and 3½ per cent., semi-annual, on preferred stock, payable Aug. 1.

Illinois Central, 4 per cent., semi-annual, payable Sept. 1. Transfer books close Aug 11.

Pullman's Palace Car Co., 2 per cent., quarterly, payable Aug 15. Transfer books close Aug. 1.

Staten Island, 1 per cent., payable Aug. 1. Transfer books close July 26.

Terre Haute & Indianapolis, 4 per cent., semi-annual, payable Aug. 1. to Western stockholders at the Treasurer's office in Terre Haute, Ind.; to Eastern stockholders at the office of the Farmers' Loan & Trust Co. in New York.

Railroad and Technical Conventions.

The *General Baggage Agents' Association* will hold its next semi-annual meeting at the Tremont House, Chicago, Aug. 8.

The *International Association of Traveling Passenger Agents* will hold its annual convention in Detroit, Mich., Aug 15.

The *Road-Masters' Association of America* will hold its first regular meeting in St. Paul, Minn., Sept. 12.

The *Master Car-Painters' Association* will hold its annual convention in Baltimore, Sept. 19.

The *New England Road-Masters' Association* will hold its first annual meeting in Boston, Sept. 20.

The *American Street Railway Association* will hold its next meeting in Chicago, Oct. 9.

The *General Time Convention* will hold its fall meeting at the Grand Pacific Hotel in Chicago, Oct. 11.

The *Southern Time Convention* will hold its fall meeting at No. 46 Bond street, New York, Oct. 17.

The *American Association of Railroad Superintendents* will hold its fall meeting in Washington, Oct. 23.

Foreclosure Sales.

The *Hopkinton* road was sold July 23 by the trustees under the mortgage, which matured about a year ago, and was bought for $40,100 by George Draper, of Hopedale, Mass. The road extends from Milford, Mass., to Ashland, 11½ miles, and was built in 1872. The amount of the bonds, which were issued in that year and became due in 1882, was $125,400. Until last spring the road was worked under lease by the Providence & Worcester Co.; since the lease expired it has been operated by the Milford & Woonsocket Co. under contract.

Railroad Club of Cincinnati.

About 40 of the representative railroad men of the city met at the Grand Hotel, Cincinnati, July 23, to perfect the organization of the Railroad Club, which has already held a preliminary meeting.

Master Mechanic Setchel, of the Ohio & Mississippi road, occupied the chair as temporary Chairman.

A constitution and by-laws were then adopted, and a permanent organization determined upon.

After a very interesting discussion the following officers were elected:

President, George W. Saul; Vice-President, C. W. Willis; Corresponding Secretary, J. C. Davie; Recording Secretary, Oliver Kinsey; Treasurer, J. H. Magill.

Communications were received from the New York, Chicago and New Orleans railroad clubs, and addresses were made by Messrs. Setchel; Chief Engineer Russell, of the Ohio & Mississippi Railroad; Colonel Ravezies, of the Alabama Great Southern, and others.

In addition to the regular officers a governing board was selected, consisting of Messrs. F. J. Ewing, Paul H. Ravezies, R. C. Maxwell, J. W. Shrage and J. F. Durham.

Some of the objects of the Society, as stated in the preamble, are the promotion of social intercourse among railroad men, the interchange of ideas and the propagation of railroad science.

Joint Executive Committee—Passenger Meeting.

The Passenger Department of the Joint Executive Committee met in Commissioner Fink's office in New York, July 24, Assistant Commissioner Pierson presiding. The roads represented at the meeting were the Baltimore & Ohio; Boston & Albany; Chicago & Atlantic; Chicago, St. Louis & Pittsburgh; Cincinnati, Washington & Baltimore; Indianapolis & St. Louis; Lake Shore & Michigan Southern; Michigan Central; Cleveland, Columbus, Cincinnati & Indianapolis; New York Central & Hudson River; New York, Lake Erie & Western; New York, Pennsylvania & Ohio; Ohio & Mississippi; Pennsylvania Railroad; Vandalia Line; Indiana, Bloomington & Western, and Grand Rapids & Indiana.

It was decided by the Committee to apply differential fares from the Atlantic seaboard to all points west of St. Louis and Chicago, the price of tickets being fixed by adding to the fares to St. Louis and Chicago the local rates beyond those points. It was also resolved to abolish all commissions on passenger tickets for west-bound business from the seaboard. The Committee further decided to insist that all lines west of St. Louis and Chicago should refrain from paying commissions on tickets sold.

On the second day (Wednesday) there was a long discussion on the effects of the cutting of rates by the lines west of Chicago and St. Louis. The St. Louis lines complain that business has been diverted from them by the roads running from Chicago to Missouri River points.

After a long discussion of the situation the meeting passed a resolution requesting all Western connections beyond Chicago and St. Louis to discontinue the payment of commissions at differential fare points in the East on all Western business and the sale of orders issued by these lines at the seaboard and generally to cease the practices which disturb the rates on business originating in the pool territory. This action does not satisfy all the St. Louis lines, which ask for measures that will compel the Northwestern roads to stop the diversion of business by illegitimate means.

The meeting granted a differential fare on business between New York and Chicago by way of the Chicago, St. Louis & Pittsburgh (the reorganized Pan-Handle route), the New York, Pennsylvania & Ohio and the Erie. It is based on the lowest rate allowed to competing routes. Applications were received for differential fares between New York and Chicago by way of the Grand Trunk, the Wabash and the Baltimore & Ohio new line, and for the establishment of differential rates at interior points.

The meeting was to be continued on Thursday.

ELECTIONS AND APPOINTMENTS.

Bradford, Bordell & Kinzua.—Mr. B. C. Williams has been appointed General Manager in place of Mr. R. G. Taylor, who is now President.

Bradford, Eldred & Cuba.—Mr. B. C. Williams has been appointed General Manager in place of Mr. R. G. Taylor, who is now President.

Buffalo, New York & Philadelphia.—Mr. E. A. Fisher has been appointed Engineer in charge of the Rochester Division in place of Robert Bell, who has gone to the Washington, Ohio & Western road.

Chesapeake & Ohio.—Mr. T. L. Chapman is appointed Superintendent of Motive Power and Machinery, vice Mr. John McFarland, deceased, the appointment taking effect July 18.

Chicago & Indiana Coal Co.—The directors of this new company are: Matthew P. Wood, Terre Haute, Ind.; James F. Casey, Wm. P. Drake, Chauncey Vibbard, A. Jameson, Morgan Morgans, Jr., W. S. Pierce, New York.

Georgia Pacific.—The following announcements are made under date of July 14: 1. Andrew B. Johnston is, at his own request, relieved from duty as Auditor of this company.

2. H. C. Ansley is appointed Auditor of this company, with office in Atlanta, Georgia.

Green Bay, Winona & St. Paul.—Mr. S. W. Champion has been appointed Traveling Passenger Agent, with headquarters at Green Bay, Wis. He was recently agent for the company at Winona and Lacrosse.

Kansas City, Springfield & Memphis.—The following circulars from Superintendent L. W. Towne are dated Kansas City, July 16:

"Mr. J. E. Beck having been relieved as Road-Master of the Missouri Division of this road, Mr. L. K. Spafford is hereby appointed General Road-Master of that division, and his orders will be respected accordingly.

"Mr. J. E. Beck is hereby appointed Road-Master of the Arkansas Division of this road, and his orders after this date will be respected."

Marquette, Houghton & Ontonagon.—At the annual meeting in Marquette, Mich., July 19, the following directors were chosen: S. L. Smith, Lansing, Mich.; D. O. Clark, Milton, Mass.; George Higginson, H. L. Higginson, J. P. Lyman, G. Z. Silsbee, Wm. Simes, J. L. Stackpole, Boston; Samuel Sloan, New York.

Massachusetts Railroad Commission.—Mr. Charles H. Litchman, of Marblehead, has been appointed Clerk to the Commission in place of Mr. Wm. A. Crafts. It is said that the change has been dictated by Governor Butler, for political reasons entirely.

New Haven & Northampton.—The following circular from President Charles N. Yeamans is dated New Haven, Conn., July 16:

"Mr. Stacy B. Opdyke, Jr., is hereby appointed Superintendent of the railways of this company, vice C. A. Goodnow, resigned. Superintendent Opdyke will have direct supervision of the Transportation Department, including all trains, trainmen, all stations and station agents and men; also of the maintenance of way, including the repairs of all bridges, buildings and other structures."

New York, Lake Erie & Western.—Mr. Stephen Little, for several years past Auditor of the company, has been appointed Comptroller, a new office. Mr. A. J. McDowell, late Assistant Auditor, is appointed Auditor in place of Mr. Little, and Mr. W. Farrington is appointed Assistant Auditor.

Norfolk Terminal.—This company has been organized with the following directors: Wm. Lamb, Norfolk, Va.; U. L. Boyce, Boyceville, Va.; Clarence F. Clark, Joseph J. Doran, Charles Hacker, F. P. Kimball, George F. Tyler, Philadelphia. The board elected F. P. Kimball President; G. R. W. Armes, Secretary and Treasurer.

Railroad Club of Cincinnati.—The officers are: President, G. W. Saul; Vice-President, C. W. Willis; Corresponding Secretary, J. C. Davie; Recording Secretary, Oliver Kinsey; Treasurer, J. H. Magill; Governing Committee, F. J. Ewing, Paul H. Ravezies, R. C. Maxwell, J. W. Schrage and J. F. Durham.

Richmond & Danville Extension Co.—The following announcements are made under date of July 14: 1. Andrew B. Johnston is, at his own request, relieved from duty as Auditor of this company.

2. H. C. Ansley is appointed Auditor of this company, with office in Atlanta, Georgia.

Rochester & Pittsburgh.—Mr. C. L. Pasho is appointed Train Dispatcher of the Buffalo Division.

Tonawanda Valley & Cuba.—Mr. B. C. Williams is appointed General Manager in place of Mr. R. G. Taylor, who is now President.

Washington, Ohio & Western.—Mr. Robert Bell has been appointed Chief Engineer. He was recently connected with the Genesee Valley road.

PERSONAL.

—It is stated that Mr. W. K. Ackerman, President of the Illinois Central Co., has addressed a letter to the board declining a re-election.

—Mr. J. W. Lunt has resigned his position as Road-Master of the Indianapolis Branch of the Wabash, St. Louis & Pacific road. He has held the office for 15 years.

—Hon. Ginery Twichell, for many years President of the old Boston & Worcester Co., died at his home in Brookline, Mass., July 23. A more extended notice of his life will be found elsewhere

—Mr. Julius Pintsch, of Berlin, has been awarded a gold medal for his system of lighting cars, steamboats, buoys and beacons by compressed gas, at the German General Exhibition of hygienic and life saving service just held in Berlin. The medal was presented by the Crown Prince in person.

—Mr. Wm. A. Crafts retires from the position of Clerk of the Massachusetts Railroad Commission, a successor having been appointed for political reasons entirely, it is said. Mr. Crafts has been Clerk of the Commission from its beginning, more than ten years ago, and has shown exceptional qualifications for the position, and it is very much to be regretted that political considerations have, for the first time, affected the appointments of the board, with the result of displacing so competent an official.

—Ex-Governor Thomas Swann, who died at his country residence in Leesburg, Va., July 24, aged 78 years, is best known from his service as Governor of Maryland and Representative in Congress. Forty years ago he was largely interested in the Baltimore & Ohio, and was President of the company for several years. It may also be noted that it was chiefly due to Gov. Swann's foresight that the plan of granting street railroad franchises was adopted in Baltimore, which has substantially made the companies pay for the city's great park.

TRAFFIC AND EARNINGS.

Joint Rates over the Wabash and Burlington Roads.

Mr. George L. Carman, Commissioner for the Wabash, St. Louis & Pacific and the Chicago, Burlington & Quincy roads, has issued a circular giving the following information to connecting lines:

"On and after this date the following rules will govern on business received from connecting lines, destined to, through, or beyond Burlington, Keokuk, Quincy, or Hannibal, viz.:

"1. When destined to Indian Territory, Texas, or Missouri River points (Kansas City, St. Joseph, Atchison, Leavenworth or Council Bluffs) and beyond, we will continue to prorate as heretofore.

"2. When destined to our interior points in Missouri, Iowa, or Illinois, we will decline to prorate under any circumstance, but demand our full tariff rates from the point at which such business reaches our respective lines, except that when destined to Fort Madison, Iowa, the Chicago, Burlington & Quincy Railroad will accept a prorate to Burlington, subject to the conditions of rule 3.

"3. When destined to Burlington, Keokuk, Quincy, or Hannibal (proper), we will accept a prorate, provided always that the proportion allowed us is not less than the following minimum rates between the points named, viz.: [Here follows a table of minimum rates, the basis being 30 cents per 100 pounds from Chicago to Burlington, Keokuk, Quincy, or Hannibal.] The circular closes as follows:

"This action renders it necessary for our connections to discontinue the practice of through billing to Burlington, Keokuk, Quincy, or Hannibal, except on freight destined to territory mentioned in rule 1; and our agents have been instructed to take up through manifests and rebill at the proportion of the rates named, provided such rates are made in accordance with the above-named rules, which, together with the minimum rates as quoted, will be in all cases strictly enforced. Agents at junction points will understand that on car-load freight originating at non-prorating points, delivered to us by connecting lines, destined to Burlington, Keokuk, Quincy, or Hannibal, we will accept minimum rates."

A Botanical Traffic Question.

The regular weekly meeting of the Local Committee of East-bound Freight Traffic was held at Commissioner Moore's office yesterday, but no important action was taken, and no subjects of interest discussed. The most important question that arose was in regard to the classification of tomatoes. Some present claimed that tomatoes were vegetables, and others contended that they were fruit. As no decision could be arrived at, it was decided to postpone the naming of the branch to which they belonged until next Tuesday, when there will also be a discussion in regard to the correct and proper pronunciation of tomatoes, a difficulty that puzzled all present yesterday.—*Chicago Inter-Ocean, July 18.*

California Wheat by Rail.

Considerable shipments of wheat are now being made from California by the way of the Southern Pacific road to New Orleans and thence to Liverpool by sea. It is said that the Southern Pacific has made arrangements to forward 50 car loads a day for some time.

Railroad Earnings.

Earnings for various periods are reported as follows:

Six months ending June 30:	1883.	1882.	Inc. or Dec.	P. c.
Chi. & West Michigan	$755,206	$719,638	I. $35,568	4.9
Des Moines & Ft. Dodge	136,407	172,057	D. 35,650	20.7
Florida Transit	250,478	209,077	I. 41,401	19.8
Nash., Chatta. & St. L	1,101,989	981,323	I. 120,666	12.3
Net earnings	480,752	412,538	I. 68,214	16.5
Norfolk & Western	1,209,435	1,024,960	I. 184,475	18.0
Net earnings	501,937	404,461	I. 97,476	24.1
Northern Central	2,044,814	2,587,711	I. 356,903	13.8
Net earnings	2,07,554	852,877	I. 254,677	30.9
Pennsylvania	¤4,352,586	22,650,853	I. 1,701,733	7.4
Net earnings	3 518,624	8,189,919	I. 328,705	4.0
South Carolina	629,265	578,322	I. 54,943	9.5
Tol., Ann Ar. & Gd. Trk	80,976	72,001	I. 8,975	12.5
Month of June:				
Chi. & West Michigan	$134,882	86,542	I. $48,340	55.6
Connotton Valley	30,947	17,233	I. 13,714	79.7
Des Moines & Ft. Dodge	22,689	21,379	I. 1,290	6.0
Florida Transit	43,232	28,844	I. 14,388	52.4
Nash., Chatta. & St. L	170,695	136,704	I. 35,956	24.8
Net earnings	83,768	51,522	I. 32,246	62.6
New Orleans & N. E	7,884	.....	.....	.....
Norfolk & Western	203,609	174,843	I. 28,766	15.9
Net earnings	84,079	72,852	I. 11,227	15.4
Northern Central	476,163	465,899	I. 10,344	2.2
Net earnings	178,244	158,913	I. 19,332	12.2
Pennsylvania	4,166,873	4,493,757	D. 63,115	1.5
Net earnings	1,179,135	1,534,326	D. 355,191	23.2
South Carolina	63,250	60,574	I. 2,676	4.4
Vicks., Shreveport & P	5,048	2,723	I. 2,325	86.0
First week in July:				
Chi. & Grand Trunk	$52,696	$32,973	I. $19,723	59.8
Kan. City, Ft. S. & Gulf	26,348	23,028	I. 3,320	14.4
Second week in July:				
Chi. & Alton	$177,016	$173,758	I. $3,258	1.7
Chi. & Eastern Illinois	30,301	33,504	D. 3,203	9.4
Chi. & Grand Trunk	46,936	34,329	D. 12,607	34.1
Chi., St. P., Min. & Oma	100,357	72,710	I. 27,647	38.0
East Tenn., Va. & Ga	129,735	103,534	I. 26,202	25.3
Illinois Central	212,000	259,909	D. 47,909	18.4
Ind., Bloom. & Western	46,955	40,776	I. 6,179	15.3
Lake Erie & Western	17,998	20,978	D. 3,070	14.6
St. Paul & Duluth	31,758	22,315	I. 9,438	42.8
St. P., Minn. & Man	170,000	259,000	D. 89,000	34.4
Third week in July:				
Canadian Pacific	$124,000	$67,000	I. $57,000	85.1
Chi. & Northwestern	505,700	462,600	I. 43,100	9.1
Denver & Rio Grande	146,700	111,300	I. 35,400	31.8
St L. & San Francisco	64,000	82,300	D. 18,300	22.0

Grain Movement.

For the week ending July 19 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past seven years:

	North-western	—Northwestern shipments.—		P.c.	Atlantic
Year.	receipts.	Total.	By rail.	by rail.	receipts.
1877	4.156,595	3,233,327	583.147	18 0	2,293,369
1878	4,330,960	3,095,508	1,347,994	43.5	3,412,025
1879	4,379,964	3,991,332	1,451.029	36.3	5,842,188
1880	5,788,152	5,383,749	1,137,290	21.1	7,954,221
1881	5,105,048	5,302,218	2,380,333	45.0	5,746,634
1882	3,333,226	2,434,888	989,178	40.6	2,263,410
1883	3,021,566	3,404,701	971,839	28.5	2,517,964

The receipts of the Northwestern markets for the week this year were 312,000 bushels (9½ per cent.) *less* than in the corresponding week of last year even, and much less than in any previous year since 1876. They were, however, 150,000 bushels more than in the previous week of this year, though with that exception they were the smallest since April. After this time last year receipts at these markets increased rapidly, because of the marketing of the abundant crop of new wheat, for which there was a good demand. This year there is much less wheat, and no pressing demand for it, and no such increase may be looked for.

The shipments of these markets in the second week of July were 970,000 bushels (40 per cent.) *more* than last year, but 1,898,000 bushels less than in 1881 and 1,979,000 less than in 1880. They were slightly more than in the previous week of this year, but with that exception were the smallest for nine weeks. The rail shipments were smaller than in the corresponding week of any previous year since 1877, and the smallest since the first week of July last year. The shipments down the Mississippi were but 46,693 bushels and ½ per cent of the whole.

The Atlantic receipts were 255,000 bushels (11½ per cent.) more than in the corresponding week of last year, but 3,229,000 bushels *less* than in 1881, 5,436,000 less than in 1880, and, with the exception of last year, the smallest since 1877.

Exports from Atlantic ports for the week to July 14 have been for four years:

	1880.	1881.	1882.	1883.
Flour, bbls	145,636	96,837	125,676	107,039
Grain, bu	6,461,703	4,698,011	1,757,294	2,245,903
Flour & grain, bu.	7.117,065	5,133,777	2,322,886	2,727,578

Thus though the exports this year were 405,000 bushels more than last, they were 2,406,000 *less* than in 1881 and 4,390,000 less than in 1880.

Coal.

Coal tonnages for the week ending July 14 are reported as follows:

	1883.	1882.	Inc. or Dec.	P.c.
Anthracite	310,620	681,633	D. 371,003	54.4
Semi-bituminous	130,793	59,373	I. 71.420	120.1
Bituminous, Penna	55,026	68,859	D. 13,833	20.1
Coke, Penna	58,238	47,942	I. 10,296	21.5

The decrease in anthracite is due to the fact that the week this year was a half-time week. The large increase in semi-bituminous is due to the fact that in the same week

last year the Cumberland miners were all on strike, and there was a partial strike in the Clearfield Region.

The coal tonnage of the Pennsylvania Railroad for the week ending July 14 was:

	Coal.	Coke.	Total.
Line of road	138,343	49,444	187,787
From other roads	53,321	8,794	62,115
Total	191,664	58,238	249,902

The total tonnage this year to July 14 was 6,270,693 tons, against 5,873,170 tons to the corresponding date in 1882, an increase of 397,523 tons, or 6.8 per cent.

Anthracite coal tonnage for June and the six months ending June 30 is reported as follows by Official Accountant John H. Jones, the statement including the entire production of anthracite coal, excepting that consumed by employés, and for steam and heating purposes about the mines:

	June.		Six months.	
	1883.	1882.	1883.	1882.
Phila. & Read.	1,026,526	586,467	3,645,255	2,906,674
Central of N. J.		404,847	1,745,399	1,888,373
Lehigh Valley	529,927	560,865	2,848,728	2,619,692
Del., Lack. & W.	415,032	428,057	2,217,068	2,019,258
Del. & H. Canal Co	287,348	270,601	1,531,161	1,365,371
Pennsylvania R. R.	253,672	220,216	1,208,969	1,056,800
Penn'a Coal Co.	124,516	132,831	653,183	604,880
N. Y., L. E. & W.	33,561	21,155	161,004	106,804
Total	2,670,582	2,625,039	14,010,767	12,567,852

Lehigh Valley tonnage includes that of the State Line & Sullivan road, which was 5,718 tons in June, 1883. In addition to the tonnage above, there were 47,377 tons transported from mines by the Delaware & Hudson Canal Co. in June, 1883, which is included in tonnage of other interests. The New Jersey Central tonnage is henceforth included with the Reading.

The total increase for June was 45,543 tons, or 1.7 per cent., four companies showing increases and four decreases. The increase for the six months was 1,442,915 tons, or 11.5 per cent., all the companies showing increases except the Central, of New Jersey.

The stock of coal on hand at tidewater shipping points, June 30, 1883, was 592,309 tons; on May 31, 1883, 645,377 tons; decrease, 53,068 tons, or 8.2 per cent., during the month.

Of the tonnage for the six months the Reading (including the New Jersey Central) had 38.5 per cent.; the Lehigh Valley, 20.3; the Delaware, Lackawanna & Western, 15.8; the Delaware & Hudson Canal Co., 10.9; the Pennsylvania Railroad Co., 8.6; the Pennsylvania Coal Co., 4.7; and the New York, Lake Erie & Western, 1.2 per cent.

Cumberland coal shipments, for the week ending July 21, were 51,448 tons. The total shipments this year to July 31 were 1,261,806 tons.

Petroleum.

The production of the Pennsylvania and New York oil wells for June is given as follows by Stowell's *Petroleum Reporter*, in barrels of 42 gallons:

	1883.	1882.	Inc. or Dec.	P.c.
Production	1,977,900	2,825,940	D. 848,040	30 0
Shipments	1,747,789	2,172,685	D. 424,896	19.5
Stock, June 30	35,985,935	29,859,952	I. 6,125,983	20.5
Producing wells	17,050	19,500	D. 2,450	12.6

The production was the largest reported for any month of this year, but was exceeded in eleven months of last year, in eleven months of 1881 and in eight months of 1880. Of the total the Allegheny District in New York furnished 16.5 per cent.; the Bradford District in Pennsylvania, 58.0 per cent.; the Warren District, 13.2 per cent., and the lower districts, 12.3 per cent.

The shipments, which in April and May were greater than the production, have again fallen below that point. They were exceeded in two months of the current year, in seven months of last year and in six months of 1881.

The stock reported is all in the pipe lines. It increased 230,111 barrels, or 0.6 per cent., during the month.

The number of producing wells decreased 50 during the month. There were 228 new wells completed and 21 dry holes reported during the month. There were 146 new wells reported in progress on June 30.

Shipments out of the region were as follows, in barrels:

	Barrels.	P.ct. of total.
New York	815,372	46.7
Philadelphia	44,309	2.5
Baltimore	15,823	0.9
Cleveland	472,389	27.0
Pittsburgh	58,481	3.4
Local points	208,728	11.9
Refined at Creek refineries	132,687	7.6
Total	1,747,789	100.0

Of the shipments from the wells 341,395 barrels, or 20 per cent., were by rail, and 1,397,394 barrels, or 80 per cent., by pipe line.

Shipments of oil refined at Creek refineries, reduced to its equivalent in crude, were: New York, 95,433; Philadelphia, 2,075; Baltimore, 300; Boston, 840; local points, 34,039; total, 132,687 barrels.

The Ohio River Pool.

A meeting of general freight and passenger agents of the lines interested in business to Ohio River points was held at the Grand Pacific Hotel in Chicago, July 19. Mr. L. D. Richardson occupied the chair, and B. E. Hand acted as Secretary.

There were present H. J. Page, J. M. Johnson and John Egan, Cincinnati, Indianapolis, St. Louis & Chicago; C. C. Waite, A. H. McLeod and A. D. McLeod, Cincinnati, Hamilton & Dayton; R. W. Geiger, Jeffersonville, Madison & Indianapolis; W. J. Young, Illinois Central; E. B. Stahlman, H. B. Smith and Murray Keller, Louisville, New Albany & Chicago; Robert Forsyth and W. Hill, Chicago & Eastern Illinois; E. A. Ford, D T. McCabe, J. A. Perkins and J. C. Ernst, Chicago, St. Louis & Pittsburgh; L. D. Richardson, Manager, B. E. Hand, General Agent, and J. C. Tucker, General Northwestern Passenger Agent of the present Ohio River Pool.

The Passenger Committee, consisting of Murray Keller and John Egan, submitted the following report:

"We do hereby recommend to the General Managers of our respective roads the formation of a pool between Chicago and Louisville, Ky., for those points proper, and when destined beyond *via* either Evansville, Cincinnati or Louisville, both ways to be based either upon the number of passengers carried or upon the revenue accrued therefrom from Jan. 1, 1880, to Jan. 1, 1883. Also the formation of a pool to and from Chicago and Indianapolis and other points covered by the Four-Line Pool and the percentages to be allotted to each line to be determined by the General Managers."

All the roads represented at the meeting voted in favor of the report except the Chicago & Eastern Illinois, which claimed that under such an arrangement it could not possibly secure a fair share of the business.

On the recommendation of the Freight Committee, it was agreed to maintain existing rates from Chicago to all Ohio River points and territory embraced in what is known as the "Four-Line Pool." It was agreed to recommend to the the General Managers of the various lines interested in the establishment of a pool on the basis of the divisions on southbound traffic as adopted at the Cincinnati meeting, the percentage of each line to be as follows:

	Green Line.	Kankakee.	Southern Dispatch.	Cincinnati & Louis Soth'n.
Cincinnati	30	40	10	20
Louisville	42½	15	..	42½
Evansville	..	..	100	..
Indianapolis	15	45	15	25

The same divisions to apply to north-bound traffic, except from Cincinnati, the latter to be for the Kankakee line 60 per cent., and for the Cincinnati, Hamilton & Dayton and connections 40 per cent.; the Louisville, New Albany & Chicago consenting to arbitrate as to the subdivision of the Cincinnati, Hamilton & Dayton proportion between it and the Green Line.

It was agreed to recommend the formation of a traffic association which shall embrace the "Four-Line Pool," Illinois Central, Wabash and other roads interested in the Ohio River business for the purpose of fixing and maintaining rates to and from all competing points.

On motion a committee consisting of W. J. Young, H. B. Smith, R. W. Geiger, Robert Forsyth, C. L. Rising, J. M. Johnson, was appointed to form a plan for a Traffic Association, a copy which is to be submitted to the general managers.

Transportation of High Explosives.

Commissioner J. W. Midgley issued the following circular, under date of July 21, for the use of the railways in the Southwestern Railway Association, the Iowa Trunk Line Association and the Colorado Traffic Association:

"Shipments of Hercules powder, Atlas powder, Giant powder, and other explosives of which nitro-glycerine forms the basis, when subject to the above associations, except California, will hereafter be transported on the following conditions and at the following classification:

"1. That, at the cost of shippers, the bottom of the car containing the above mentioned explosives must be covered to the depth of at least 2 in. with sawdust to absorb possible leakage.

"2. That the packages containing the explosives shall be so placed and loaded that the cartridges shall always lie on their sides and not on their ends,

"3. That the cars shall be so marked, on both sides and ends, that those who will have charge of them will not do anything ignoranly to incur danger.

"4. In less than car-loads, this property will be received (when made into cartridges only and not in bulk under any circumstances) on the following conditions:

"Packed in wooden cases, in cartridges, each case not exceeding 100 pounds, nor less than 5 pounds of explosives, provided that such explosives are packed in dry sawdust, as follows:

"Each cartridge shall be surrounded on all sides with dry sawdust, and all interstices between such cartridges and a space of at least 1 in. between the outer side of such cartridge and the inner side of the case shall be filled with dry sawdust. Each of these cases shall be plainly marked on at least three of its sides with the name of its contents and 'Explosives—Dangerous,' so as to be readily seen by those who are to handle it.

"5. In no case must the caps, fuse, or exploders used for exploding these powders be loaded in the same car with the explosives, and under no circumstances will the cars be received if so loaded.

"6. Any and all nitrate or other explosive preparations not in accordance with such specifications (except ordinary black powder) will in no case be received for shipment.

"7. All loss or damage to such property that may result from explosion or from a disregard of any of the above conditions by shippers or by the agents of the lines comprised in the above associations, must be assumed by the shipper or owner.

"8. Under the above conditions, the rates will be: In quantities less than car-loads, actual weight, twice first class; in car-loads, actual weight, minimum 20,000 pounds per car, first class. No shipment will be rated at less than 100 pounds.

"The right of any of the railroad companies comprised in the above associations to refuse to receive high explosives for transportation under any circumstances is reserved."

Heretofore high explosives were not mentioned in the tariffs of these associations, being accepted by the different lines at special rates.

OLD AND NEW ROADS.

Atchison, Topeka & Santa Fe.—Three months ago the stock of this company was divided among 7,035 holders, 6,935 of whom were registered at the Boston office. Since then the number has been increased by 815, nearly all on the Boston registry, making the present number of stockholders 7,850 in all.

Atlantic & North Carolina.—The question of the lease of this road has not yet been settled, and a new offer for its purchase or lease has been received from the North Carolina Railroad Co. A committee of the directors of that company were to hold a conference this week with Governor Jarvis, upon whose action the settlement of the question depends, as the state owns a controlling interest in the road.

Augusta, Elberton & Chicago.—At meeting held in Augusta, Ga., July 17, the board voted to locate the road finally on the line surveyed through Danburg. It was also finally decided to build the road of 5-ft. gauge.

Augusta & Sandersville.—It is proposed to build a railroad from Augusta, Ga., southwest to Sandersville, about 65 miles.

Baltimore & Ohio.—Work has been begun on the new Philadelphia Branch at several points in Maryland and Delaware by the contractors who have taken sections of the grading. Some heavy cutting will be required in the neighborhood of Wilmington.

A further hearing was had July 19 on the proposed bridge over the Susquehanna River, near Port Deposit, on this branch. The Port Deposit people presented arguments to prove that the bridge should be provided with a draw, or should be at least 120 ft. clear above the water. The company's plans provide for a bridge 80 ft. above the water without a draw. The Board of Public Works reserved its decision.

Brunswick & Western.—Surveys continue to be made for the extension of this road from Albany, Ga., westward.

The company has executed and recorded a mortgage upon its property, made to secure a proposed issue of $3,500,000 bonds which will be a first lien on the road.

Buffalo, New York & Philadelphia.—On the branch from Salamanca, N. Y., to Olean, the grading is nearly finished. Track has been laid and ballasted from Salamanca southeast to the Tuna Creek crossing, near Carrolton, 6 miles, and tracklaying has been begun from Olean westward. From the Tuna crossing east no more track can be laid until some arrangement is made as to the crossing of the Bradford Branch of the Erie, near that point. The survey of the line provided for a grade crossing, but the Erie has protested against it, desiring an overhead crossing.

Burlington, Cedar Rapids & Northern.—In the suit of the Northwestern Fuel Co. against this company to recover some $1,200,000 for alleged breach of contract for carrying coal from the mines of the Fuel Co. at What Cheer, Ia., a decision has been given in favor of the Burlington, Cedar Rapids & Northern Co. It was held that that company had performed its part of the contract, and that the failure to execute the contract, if any existed, was due to the Minneapolis & St. Louis Co., which was not under control of the defendant, and which refused to accept the very low rates called for over its line. In this suit the Fuel Co. attached a large number of cars belonging to the road, and kept them locked up for several months. It is probable that the Railroad Co. which was thus deprived of their use, will sue the Fuel Co. for damages resulting from this action.

Central, of New Jersey.—The following statement has been published for the year ending Dec. 31, 1882, showing the accounts for each branch and division:

Division.	Earnings.	Expenses.	Net earnings.
C. R. R. div.	$5,333,597	$2,984,203	$2,349,394
Newark Branch	201,173	202,482	Def. 1,308
High Bridge Branch	238,915	170,681	68,233
Perth Amboy Branch	201,140	98,192	102,947
Long Branch R. R.	157,798	146,219	11,578
N. J. Southern	426,156	405,527	20,628
Lehigh & Susquehanna	4,295,065	1,938,125	2,355,936
Lehigh & Lackawanna	51,812	34,308	17,504
Union Coal Co.	77,418	76,757	661
Spring Brook R. R.	1,601	170	1,520
Total	$11,312,266	$6,221,225	$5,091,071

The statement includes the earnings and expenses of the ferries, steamboats, freight transfer boats, and all other earnings of the company.

Central Pacific.—This company has made arrangements with J. A. Blossom to inspect the country along the line of the railroad from the Nevada state line to Ogden, with a view of obtaining flowing water by artesian wells. Should water be obtained in desired quantity, a large number of wells will be bored.

The strike of the Chinese laborers on the extension of the California & Oregon Division is at an end, and the whole force of nearly 4,000 men has returned to work.

Chicago, Burlington & Quincy.—This company is about to build a new passenger station, 50 by 150 ft., at Des Moines, Ia. It will be of pressed brick, with cut stone trimmings.

The company is also about to build at Creston, Ia., a building for the use of its employés. It will be of pressed brick, 50 by 70 ft., and two stories high, and will contain a library, reading-room and other conveniences.

Chicago & Indiana Coal Co.—This company has filed articles of incorporation in Indiana for the purpose of building a railroad from Chicago southward through Western Indiana to Troy on the Ohio River, a distance of 280 miles. The project also includes numerous branches through the coal districts. The capital stock is to be $12,500,000. The company also proposes to mine and sell coal, and to own tugs and barges for its transportation by water.

Chicago, St. Paul & Northern Pacific.—This company was recently organized to build a railroad from Genoa, Wis., on the Illinois line, northwest to Superior City, with branches to Milwaukee on the east, and to St. Paul on the west.

A suit has already been begun to prevent the transfer to this new company of the right of way, graded road-bed or other property of the old Chicago & Northern Pacific Air Line, later known as the Chicago, Portage & Superior Co. The plaintiffs in the suit were connected with that company, and seek to establish their right to the property.

Chicago, Springfield & St. Louis.—Work on this road has been stopped owing to the failure of D. L. Wing & Co., the contractors, to provide money. The projected line is from Springfield, Ill., through Litchfield to East St. Louis, and grading has been done for 17 miles south of Litchfield and for some 35 miles north of that town. An effort has been made to show that the project was backed by the Illinois Central Co., but it does not appear to have been successful.

Cincinnati & Eastern.—Track is now laid to Henley, O., 3 miles eastward from the late terminus at Ottawa, and 90 miles from Cincinnati. Only 16 miles of track remain to be laid to reach Portsmouth.

Cincinnati, Washington & Baltimore.—In the matter of the Marietta & Cincinnati Railroad reorganization, notice is given that the Farmers' Loan & Trust Co., of New York, upon the presentation and surrender of the reorganization certificates on and after July 16, 1883, will deliver the new securities of the Cincinnati, Washington & Baltimore Railroad Co. For the information of those holding the old Marietta & Cincinnati bonds and desiring to exchange them the following statement has been published: For a $1,000 old first-mortgage bond the holder should receive a $1,000 Cincinnati, Washington & Baltimore first-mortgage 4½ per cent. bond, $297.50 in first scrip (being for interest on the old bonds up to Nov. 1, 1881), and $67.50 in cash for accrued interest on the new bond.

For a $1,000 old second-mortgage bond the holder should recive a $1,000 Cincinnati, Washington & Baltimore second-mortgage 5 per cent. bond, $210 in second scrip and $83.33 cash.

For a $1,000 old third-mortgage bond the holder should receive $666.66 in Cincinnati, Washington & Baltimore third scrip, and $720 in income scrip.

The scrip of the first, second and third mortgages is convertible into the respective bonds in sums of $1,000, and all bear interest at the rates of the different bonds from Nov. 1, 1881.

A fund amounting to $470,000 has been voted for the purchase of equipment by the new company.

Denver & New Orleans.—Judge Donohue, of the New York Supreme Court, has vacated the injunction restraining the Mercantile Trust Co., of New York, from selling the stock and bonds of this company, which were pledged with it by the Denver & New Orleans Construction Co. as collateral.

Detroit, Mackinac & Marquette.—This company purposes increasing its stock from $4,750,000 to $10,000,000, the new issue being for the purpose of building the extension from Marquette to the mines and the Sault Ste. Marie Branch.

Evansville, Washington & Brazil.—This road (formerly the Indianapolis & Evansville) is now completed to Oakland, Ind., the crossing of the Louisville, Evansville & St. Louis road, 14 miles southward from the late terminus at Petersburg, and 80 miles from Washington, the crossing of the Ohio & Mississippi road. Regular trains between Washington and Oakland will be put on in a short time.

Geneva, Hornellsville & Pine Creek.—Work is progressing on the grading of this road between Geneva, N. Y., and Naples.

Gulf, Colorado & Santa Fe.—This company is to extend its Dallas Branch from Dallas, Tex., northeast to Paris, about 95 miles, provided the citizens of Dallas will transfer to it the $30,000 in notes they gave to the Texas & St. Louis if that road would come there, and which the road finally declined to take, not thinking it could reach Dallas on time. Many of the note-givers favor the transfer of the notes

Highland Junction.—Officers of this company state that the bill which failed to pass the New York Legislature at its last session was in the interest of the Highland Trans-Hudson Co., a rival organization. They claim that the Highland Junction Co. has already sufficient authority to build a bridge over the Hudson River.

The projected line of this road is from the New York & New England at Mattewan, to the New York, Lake Erie & Western at Goshen, a distance of 26 miles. It is proposed to cross the Hudson between Storm King and Breakneck mountains, by a bridge 150 ft. above the water, with two spans of 750 ft. each, the bridge to have only a single pier in the centre of the river.

Hudson Tunnel Railroad.—Work on this company's tunnel under the Hudson River has been stopped for the present, on account of a want of money.

Illinois Midland.—Final arguments in the foreclosure suits against this road will be heard on Aug. 7 next by Justice Harlan, United States Court room in Boston.

Kalamazoo, Lowell & Northern Michigan.—The stockholders of this company met in Hastings, Mich., July 17, and voted to sell the franchises, right of way and graded road-bed between Hastings and Kalamazoo to the lately organized Chicago, Kalamazoo & Saginaw Co., and those between Hastings and Lowell to the Hastings, Lowell & Northern Co. A large part of the road was graded several years ago, but no track was ever laid on it.

Kansas City, Lawrence & Southern Kansas.—Articles of consolidation have been filed by this company, the Ottawa & Burlington and the Kansas City & Olathe companies. The consolidated company will be known as the Southern Kansas Railroad Co., and will have $3,500,000 capital stock. The consolidation will have no effect upon the relations of the roads, as the Atchison, Topeka & Santa Fe owns nearly all the stock of the roads, and controls the consolidated company completely.

Kent Northern.—A company has been formed to build a railroad from St. Louis, N. B., to Richibucto, the terminus of this road. The distance is about 7 miles.

LaFayette Fair Grounds.—This company has been organized to build a branch from the Lake Erie & Western track in LaFayette, Ind., to the Tippecanoe County fair grounds. The distance is only 1½ miles.

Lehigh Valley.—The report of a sale of this road to the Pennsylvania Railroad Co. has been revived. It is also reported that negotiations are in progress for a sale of the controlling interest owned by the Packer estate to Wm. H. Vanderbilt. Both rumors have been denied by officers of the company, but they continue to circulate.

Long Island.—This company makes the following statement of gross earnings for the nine months of its fiscal year from Oct. 1 to June 30:

	1882-83.	1881-82.	1880-81.
Passengers	$921,024	$872,056	$699,852
Freight	538,469	402,261	422,824
Miscellaneous	163,179	91,122	43,160
Total	$1,622,672	$1,425,439	$1,165,836

The total increase this year over 1881-82 was $197,233, or 13.8 per cent.; over 1880-81, the increase was $456,836, or 39.2 per cent.

Louisville, New Orleans & Texas.—The tracklaying from Vicksburg, Miss., northward to the Yazoo crossing, about 8 miles, was completed last week. This makes a continuous track 56 miles in length, from Port Gibson to a point 20 miles north of the Yazoo crossing.

Mexican Railroad Notes.—The following notes are from the *Mexican Financier* of recent date:

There will soon be a branch built from Tlaxcala to the line of the Mexican Railway.

The Federal District Railway Co. has finished its double track beginning at the Tlaxpana Gate and ending at the Pueblo de Popotla.

It is said that a company, represented by Sr. Matilde Alcocer, is negotiating for a concession for a railway from Merida to Hunuema with a branch to Celestun.

It is said that Mr. Sheridan has made propositions for the purchase of the Hidalgo Railway. He represents an English company, which proposes to build the railway in accordance with the terms of the concession.

It is now certain that the line of the Mexican Central will pass near Mapimi in Durango and close to Villa Lerdo, and negotiations have begun with the proprietors of the lands in that part of the country for the right of way; a rich agricultural and mining region will here be tributary to the railway.

The station of the Mexican National at Morelia is about ready for the reception of the first trains. It is a point of great interest for the citizens, and it is the end of daily promenades of hundreds, who loiter around with an expectant air, as if they thought that at any moment the locomotive might appear drawing 50 cars loaded with passengers.

The *Diario Oficial* denies the rumor circulated by the *Monitor Republicano* to the effect that the English bondholders had rejected the proposition made to them by Sr. Carlos Rivas to purchase the Interoceanic Railway, made up by the consolidation of various lines, both under construction and projected, from Mexico to Acapulco, to Irolo, to Cuautla, to Morelos, Jalapa and Vera Cruz, a large part of the shares in which had been bought by the President. The *Diario* says the purchase by the President of a part of these lines was a private transaction and not a matter for public discussion; and that the rumors in question were entirely false, for no proposition had been made to the holders of the Mexican bonds in London for the purchase of the Interoceanic Railway.

Montreal, Portland & Boston.—The grading on the extension from Frelighsburg, Que., to Sheldon, Vt., is nearly finished, and tracklaying will soon be begun at Sheldon.

Nashville, Chattanooga & St. Louis.—This company makes the following statement for June and the year ending June 30:

	June.		Year.	
	1883.	1882.	1882-83.	1881-82.
Earnings	$170,600	$136,704	$2,283,523	$2,074,583
Expenses	86,892	85,182	1,274,855	1,240,991
Net earnings	$83,768	$51,522	$1,008,668	$833,592
Interest and taxes			650,972	634,830
Surplus			$357,696	$198,762

For the year there was an increase of $208,940, or 10.1 per cent., in gross earnings; an increase of $33,864, or 2.7 per cent., in expenses; an increase of $175,076, or 21.0 per cent., in net earnings, and an increase of $158,984, or 79.9 per cent., in surplus.

National Transit Co.—This company has completed a branch oil pipe line from Millway, Pa., where it taps the pipe line to Philadelphia, to Baltimore. The terminus in Baltimore is at the tanks of the United Oil Co., in Canton.

New York Central & Hudson River.—This company began to run local passenger trains on the belt road around Buffalo on July 23. The entire distance is about 15 miles, and 14 stations have been established. The lowest fare charged is 5 cents, and the entire trip will cost 30 cents. The time from the Exchange street station back to the same point is 45 minutes. These trains now make 12 round trips daily, and the number will be increased if the traffic developed requires more accommodations.

New York, West Shore & Buffalo.—The Rochester *Democrat and Chronicle* says: "The contractors and subcontractors for the New York, West Shore & Buffalo Rail way are pushing forward their work as rapidly as possible. The work of grading through the towns of Alabama, Oakfield and Bergen and the west part of Elba is nearly completed. The heaviest part of the work in Genesee County is on the Todd farm in the west part of Byron, where the road crosses Spring Creek, requiring an embankment of about one mile in length, much of the distance from 20 to 32 ft. in height. Two dummy engines are now employed drawing two dirt trains from the pit in Elba to construct the embankment, which will require months of time yet to complete. At the crossing of Spring Creek it has become necessary to drive some 500 piles 25 ft. long as a foundation for the wall of the culvert required for a drive way and water channel combined. Those piles are brought by cars on the New York Central from Tonawanda to South Byron and from there five miles by teams. Besides the two dirt trains drawn by steam, many teams are employed hauling, filling with scrapers and carts and wagons, and some 400 or 500 laborers are constantly employed, most of them Italians. This part of the work is carried on by the contractors themselves, W. A. Douglass & Co. The mason work is performed by William McKeekin, and is well under way, except the culvert on the Todd farm, which has been delayed. The location of the depot building at Byron Center is finally determined upon. It is to be between the Holley road and Black Creek, and is to consist of a commodious passenger building on the south side and ample freight house on the north side of the tracks. To secure this location it has become necessary for the citizens to raise by subscription about $600."

Norfolk Terminal.—This company purposes building a belt railroad from the station of the Norfolk & Western road in Norfolk, Va., around the northern outskirts of the city to the Elizabeth River at Lambert's Point. The plan is to open a belt boulevard, 80 ft. wide, with a double railroad track in the centre and on each side a fine graded and shelled roadway. Along this avenue there will be sites for cattle yards, coal yards and manufacturing establishments. The terminus is at Lambert's Point, where the Norfolk & Western has large interests in water fronts, and where wharves and docks will be built and a coaling station established. The stock of the road is owned principally in Philadelphia, but the Norfolk & Western Co. owns a controlling interest in it.

Norfolk & Virginia Beach.—Track is now laid on this road from Norfolk, Va., to the ocean beach just south of Cape Henry, and the road will soon be fully opened. It is 20 miles long. At the beach, which is said to be one of the finest on the coast, the company is building a large pavilion for visitors, and a large hotel is also to be added.

Northern Central.—This company makes the following statement for June and the six months ending June 30:

	June.		Six months.	
	1883.	1882.	1883.	1882.
Earnings	$476,164	$465,819	$2,944,614	$2,587,711
Working expenses	280,985	282,766	1,650,679	1,607,442
Extraordinary expen.	16,935	24,140	216,381	157,392
Total	$297,920	$306,906	$1,867,060	$1,764,834
Net earnings	$178,244	$158,913	$1,077,554	$822,877

For the six months there was an increase of $356,903, or 13.8 per cent., in gross earnings; an increase of $43,237, or 2.7 per cent., in working expenses; an increase of $58,989, or 37.6 per cent., in extraordinary expenses; an increase of $102,226, or 5.9 per cent., in total expenses, and an increase of $254,677, or 30.9 per cent., in net earnings.

Norfolk & Western.—This company makes the following statement for June and the six months ending June 30:

	June.		Six months.	
	1883.	1882.	1883.	1882.
Earnings	$203,609	$174,843	$1,209,435	$1,024,960
Expenses	119,530	101,990	707,498	620,499
Net earnings	$84,079	$72,853	$501,937	$404,461

For the six months there was an increase of $184,475, or 18.0 per cent., in gross earnings; an increase of $86,999, or 14.0 per cent., in expenses, and an increase of $97,476, or 24.1 per cent., in net earnings.

Ohio & Mississippi.—Receiver Douglas reports to the Court for June as follows:

Cash on hand, June 1	$59,068
Receipts from all sources	479,744
Total	$538,812
Vouchers, pay-rolls and arrearages	298,601
Cash on hand, July 1	$240,211

The receipts exceeded the disbursements by $181,143 for the month.

Old Colony.—This company has bought 2,400 tons of steel rails, which will be used to renew the track of the Lowell & Framingham Branch. These rails will all be laid this season.

Pennsylvania.—This company's statement for June shows for that month, as compared with June, 1882, on all lines east of Pittsburgh and Erie:

An increase in gross earnings of	$63,115
An increase in expenses of	418,306
Net decrease	$355,191

For the six months ending June 30, as compared with the corresponding period of 1882, the same lines show:

An increase in gross earnings of	$1,701,733
An increase in expenses of	1,373,028
Net increase	$328,705

All the lines west of Pittsburgh and Erie for the six months of 1883 show a surplus over all liabilities of $182,931, being a gain of $147,468 as compared with the corresponding period of last year.

Richmond & Petersburg.—The Richmond (Va.) *State* of July 24 says: "The work on the James River bridge of the Richmond & Petersburg Railroad Co. is progressing satisfactorily. There will be 15 spans. One span is finished and has the track. Another span is ready for the track, while two others are half completed. The masonry of the abutments will be very solid and handsome. The work on the south abutment is pushed steadily. Supt. J. R. Kenly is the Chief Engineer of the bridge and Mr. A. Langstaff Johnston is the Engineer in charge of construction. It is thought that the bridge will be finished by December, 1883."

Rutland.—The canvass of the present or Page management and of the oppostion for proxies and votes from the stockholders grows more active. Arguments of every kind are used, and both parties claim a majority. The issue is now complicated by the fact that the Central Vermont managers are said to be trying to secure a controlling interest, their object being to secure a new or modified lease for a long term and, probably, at a lower rental than is now paid. The result is still uncertain, as a great deal of the stock is held in small lots by persons scattered through Vermont and Massachusetts.

St. Louis, Ottawa & Topeka.—This company has been organized to build a railroad from Topeka, Kan., southeast about 40 miles to Ottawa, where connection would be made with a branch of the Missouri Pacific.

St. Paul, Minneapolis & Manitoba.—It is reported that this company intends to build its Devil's Lake Branch from its present terminus at the lake westward across the extreme northern part of Dakota and thence into Montana as far as Fort Benton, on the Missouri. This is entirely a rumor as yet, and rests chiefly on the fact that parties connected with the road have been buying real estate at Fort Benton and the falls of the Missouri.

San Francisco, Oakland & Piedmont.—This company has filed articles of incorporation to build a narrow-guage road from Oakland, Cal., to Piedmont, a distance of 6½ miles.

Seattle, Puget Sound & Gray's Harbor.—This company has made an agreement with W. H. Graves, of New York, to place its bonds at the rate of $25,000 per mile, provided the rate of local subscriptions are sufficient to pay for the right of way, station grounds and terminal property. The projected line is from Seattle, Wash. Ter., southwest to Olympia, and thence west to Gray's Harbor on the Pacific, a distance of about 120 miles.

Sherrick Run.—This company has been incorporated to build a railroad from Summit, Pa., on the Mount Pleasant Branch of the Baltimore & Ohio, to the Monastery Coke Works in Westmoreland County, a distance of 25 miles. The incorporators are G. B. Bosworth, Thomas M. Carnegie, H. C. Frick, W. F. McCook, D. A. Stewart and John Walker.

Staten Island.—Sealed proposals will be received until noon of Aug. 9 for the grading, masonry and superstructure of the Staten Island rapid transit road from a point on the island opposite Elizabethport along the shore to Peteler's, about 13 miles. Maps, profiles, etc., can be seen and information obtained, after July 30, at the office of Chief Engineer John A. Wilson, No. 322 Broadway, New York.

Telegraph Operators' Strike.—The differences which have been under discussion for some weeks between the telegraph operators and the companies terminated in a general strike last week, all the operators belonging to the brotherhood, which includes a very large majority of the skilled operators, quitting work at noon on July 19. The Western Union Co., which, of course, bears the chief burden of the trouble, at once made efforts to fill the places of the strikers, but with indifferent success. So far it has not been able to handle its business well, although there has been a considerable decrease in its volume. The strikers asked an advance amounting to about 15 per cent. in salaries and made some other conditions, such as extra pay for Sunday work, equal pay for women and an increase for the linemen.

The strike proceeded without any special event until July 25, when the American Rapid Telegraph Co. made terms with the strikers, and its operators, some 300 in number, returned to work.

So far the railroad operators have not joined in the strike, although at many small offices, where one operator is employed both for the railroad and the Western Union or commercial work, they have generally dropped the latter, and continue to do the railroad work only. It has been threatened, however, in Chicago, that the railroad operators would strike if the companies attempted to help the Western Union.

Texas & St. Louis.—A dispatch from Little Rock, Ark., July 25, says: "The United States Court yesterday decided the case of the Texas & St. Louis Railroad Co. *vs.* Rust & Coolidge. The Court granted the motion of the defendants to dismiss the receiver and dissolve the injunction, ordering the tolls, bridge, etc., to be turned over to the parties from whom the receiver took them."

Texas Trunk.—This company has bought additional equipment, and also rails for the extension of 13 miles from Kaufman, Tex., to Kemp. Contracts for the grading from Kemp to Athens will be let soon.

Thomasville & Northeastern.—Application has been made to the Georgia Legislature to charter a company by this name to build a railroad from Thomasville, Ga., on the Savannah, Florida & Western road, northeast to Augusta, a distance of about 240 miles.

Virginia & Carolina.—Work on this road has been begun at St. Tamany in Mecklenburg County, Va. The contracts have been let from Ridgeway, N. C., on the Raleigh & Gaston road, northeast 25 miles. The company expects to have the heavy work near Ridgeway and the bridge over the Roanoke River done this year, and the lighter grading in the spring. The projected line is from Ridgeway northeast to Richmond, about 100 miles.

Wilmington & Northern.—This company is now running passenger trains over its extension from Wilmington, Del., to the Delaware River, where connection is made with steamboats on the river. This connection is made chiefly for excursion parties to Cape May and other points. The extension, which is 3½ miles long, was completed in December last, and is used chiefly for freight.

The company is building a new round-house and repair shops in Wilmington. The round-house will hold five engines, and the shops, which are of brick, include a blacksmith shop 24 by 40 ft., and a car shop 50 by 70 ft. in size.

Wisconsin Central.—It is said that this company will build an extension of its Wisconsin & Minnesota line from Chippewa Falls, Wis., westward to St. Paul.

Work will soon be begun on the branch from Ashland, Wis., to the Montreal iron range, with the intention of completing it next spring.